

**Fisheries Resources and Fisheries
Potential of Williston Reservoir
and its Tributary Streams.**

**Volume II Fisheries Resources
Potential of Williston Lake
Tributaries – A Preliminary Overview.**

by

P. G. Bruce and P. J. Starr

FISHERIES TECHNICAL CIRCULAR No. 69
1985



Province of British Columbia
Ministry of Environment

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OF WILLISTON RESERVOIR AND ITS TRIBUTARY STREAMS

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by

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Canadian Cataloguing in Publication Data

Bruce, P. G. (Peter G.), 1947-

Fisheries resources and fisheries potential of
Williston reservoir and its tributary streams :
volume II : fisheries resources of Williston
Lake tributaries

(Fisheries technical circular, ISSN 0229-1150 ;
no. 69)

Bibliography: p.
ISBN 0-7726-0441-X

1. Fishery resources - British Columbia -
Williston Lake Region. I. Starr, P. J. II.
British Columbia. Ministry of Environment.
III. Title. IV. Title: Fisheries resources
of Williston Lake tributaries, a preliminary
overview. V. Series.

SH224.B7B782 1985 333.95'611'097111 C86-092050-X

TABLE OF CONTENTS

	<u>Page</u>
TABLE OF CONTENTS	ii
ACKNOWLEDGEMENTS	v
INTRODUCTION	1
STUDY AREA	1
METHODS	3
HABITAT ASSESSMENT	5
WATER CHEMISTRY	6
FISHERIES RESOURCE	6
RESULTS	7
HABITAT ASSESSMENT	7
WATER CHEMISTRY	7
FISHERIES RESOURCE	13
Streams of Parsnip Reach Basin	13
Anzac River	13
Blackwater Creek	16
"Centennial" Creek	16
Cut Thumb Creek	16
Eklund Creek	16
Hominka River	21
Lignite Creek	21
McLeod River	21
Manson River	21
Mischinsinlika Creek	24
Misinchinka River	24
Mugaha Creek	24
Nation River	27
Omineca and Osilinka Rivers	27
Pack and Crooked Rivers	27
Parship River and Tributaries	31
Reynolds Creek	31

	<u>Page</u>
Scott Creek	33
Six-mile, Kimta and Patsuk Creeks	33
Strandberg Creek	33
Table River	37
Tony Creek	37
Tutu Creek	37
Unnamed Creek "B"	40
Unnamed Creek "C"	40
Weston Creek	40
Summary Parsnip Reach Basin	44
Streams of the Finlay Reach Basin	49
Chowika Creek	49
Collins Creek	49
Davis River	49
Factor Ross Creek	54
Finlay River	54
Ingenika River	54
Ivor Creek	54
Lafferty Creek	54
Mesilinka River	59
Ospika River	59
Police Creek	59
Teare and Chunamon Creeks	59
Summary Finlay Reach Basin	63
Streams of the Peace Reach Basin	67
Adams Creek	67
Bernard Creek	67
Carbon Creek	67
Clearwater Creek	71
Ducette Creek	74
Dunlevy Creek	74
Nabesche River	74
Pardonet Creek	74

	<u>Page</u>
Point Creek	78
Schooler Creek	78
Selwyn Creek	78
Stott Creek	82
West Nabesche River	82
Wicked River	82
Unnamed Creek "A"	85
Summary of Peace Reach Basin	85
GROWTH RATES	89
SPAWNING AND DISTRIBUTION OF FISH	91
PARASITES	93
DISCUSSION	93
SPAWNING AND REARING CAPABILITY	93
EFFECTS OF IMPOUNDMENT	96
CONCLUSIONS	97
RECOMMENDATIONS	99
LITERATURE CITED	101

ACKNOWLEDGEMENTS

The authors express sincere gratitude to the personnel and staff of the B.C. Forest Service Engineering Camp Chico for use of their camp facilities. Grateful thanks to B. Fuhr and D. Barrett for their assistance with the field work. J. Tuck, British Columbia Forest Products, Mackenzie, and J. Berghammer, Parsnip River Bridge generously gave much useful information about angling in the Williston Lake drainage. A.G. Smith, Water Survey of Canada, supplied flow data.

T.G. Halsey designed and supervised the study, and reviewed the manuscript. K. Tsumura organized shipments of technical equipment to the field. P. Slaney, A. Tautz and L. Steigenberger gave technical advice. Dr. J.D. McPhail identified fry collected during the survey.

Special thanks to I. Sanson and D. McKay for typing the manuscript, and P. Henderson for preparation of figures.

INTRODUCTION

In 1975, a study of the Williston Lake fisheries resource was initiated by the Fisheries Research and Technical Services Section, B.C. Fish and Wildlife Branch. This study was one component of the Williston Potentials Study co-ordinated by the Environment and Land Use Committee (ELUC) Secretariat. An integral part of the fisheries study was to survey streams in the reservoir watershed. The two major objectives were to:

1. Locate and describe important spawning areas in tributaries and evaluate reproductive and rearing capacity for stream resident and reservoir fishes, and
2. Determine fish species diversity and distribution.

STUDY AREA

Williston Lake, located approximately 240 km north of Prince George, was formed by construction of the W.A.C. Bennett Dam on the Peace River 26 km upstream of Hudson Hope (Fig. 1). Construction and flooding began in 1968 with full storage level (FSL) reached in 1972 at an elevation of 672 m. The area of the reservoir at FSL is approximately 173,588 hectares. Predicted average annual drawdown is about 16.8 m.

The reservoir has three major basins: the Parsnip and Finlay Reach basins which lie south and north, respectively, in the Rocky Mountain Trench and the Peace Reach Basin which lies east and west over the former Peace River valley from W.A.C. Bennett Dam to Finlay Forks (Fig. 1).

The morphometry of the Rocky Mountain Trench was primarily bench land traversed by extensively meandering rivers, the Parsnip flowing north and Finlay south. Flooding created extensive shallow areas in these basins compared to the fjord-like Peace Reach Basin where the Rocky Mountains and eastern foothills rise steeply on both the north and south sides.

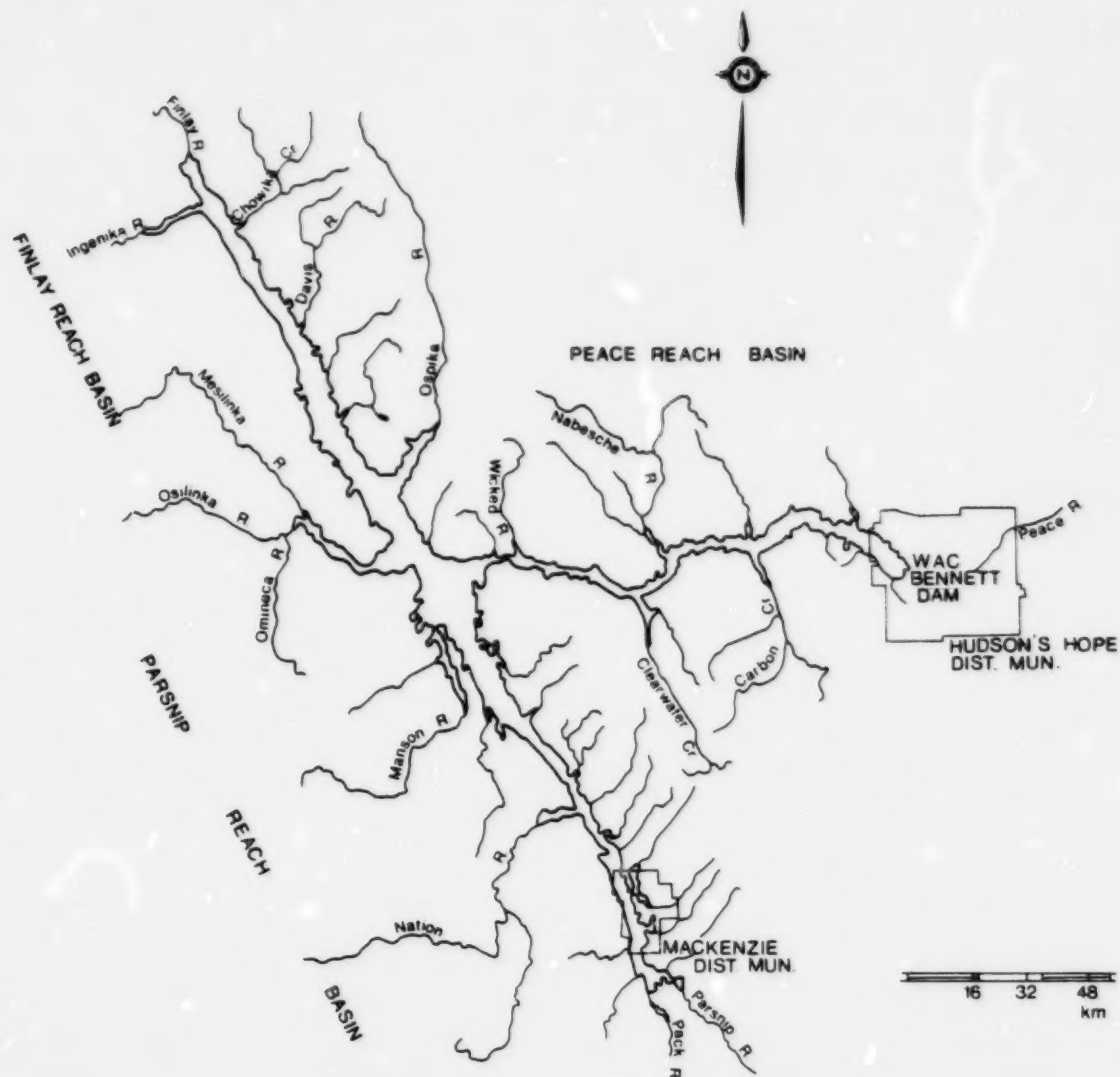


Figure 1 WILLISTON LAKE AND TRIBUTARIES

Streams were arbitrarily divided according to their drainage areas: major rivers (over 1500 km²); large rivers (400 to 1500 km²); medium rivers (50 to 400 km²); and small rivers (less than 50 km²)(Table 1). The Parsnip Reach Basin has the greatest number of streams and major river systems. The Finlay Reach Basin has a lower total number of streams compared with Peace Reach Basin but has more major systems. The Peace Reach Basin has no major systems due to the limitation on drainage area size imposed by local topography, i.e. steep-sided Rocky Mountains.

Prior to impoundment the Parsnip, Finlay and Peace Rivers, and their tributaries supported populations of typical riverine fish species and some lacustrine species, e.g. lake whitefish (Withler 1959). Although impoundment vastly increased the amount of water available to fish, the amount of critically important stream habitat decreased. In spite of this decrease, rainbow trout, Arctic grayling and Dolly Varden continued to spawn in rivers (according to local angler reports).

Maximum streamflows occur during spring runoff (May and June) following spring break-up. During this period river sediment loads are high. The duration of turbid conditions is longer in the large rivers of the Parsnip and Finlay Reach basins compared to Peace Reach Basin tributaries (Dave Barrett, pers. comm., 1974). Flows decrease throughout summer and autumn with low flows occurring during December, January and February. Winter conditions are severe but not well documented with regard to fish populations.

METHODS

Stream survey sites were accessed by vehicle, boat and helicopter. Reconnaissance of survey sites was done on foot. Tributaries were divided into reaches, i.e. lengths of stream having relatively homogenous characteristics, and as many reaches of each stream surveyed as possible. Collection of data at each survey site included all or part of the following: subjective description of physical habitat, samples of fish and collection of water samples for chemical analysis.

TABLE 1. Watershed area (km²) of Williston Lake and Tributary

BASIN	TOTAL NUMBER TRIBUTARIES	NUMBER SMALL	NUMBER MEDIUM	NUMBER LARGE	NUMBER MAJOR	WATERSHED AREA (km ²)
East Parsnip	52	40	11	0	1	6459
West Parsnip	79	65	8	1	5	21845
Total	131	105	19	1	6	28304
East Finlay	57	45	9	2	1	5467
West Finlay	19	8	8	0	3	26976
Total	77	53	17	2	4	32443
South Peace	58	51	5	2	0	2672
North Peace	63	53	8	2	0	2868
Total	121	104	13	4	0	5540
Williston Total	329	262	49	7	10	66287

HABITAT ASSESSMENT

Length, drainage area and average gradient of tributaries and reaches were calculated from topographical maps. For the purpose of these calculations, the high water line of Williston Lake was considered the mouth of any tributary. Slope and length were computed only to an elevation of 1220 m; thus, stream gradients were accurately comparable. This method, therefore, eliminated the steeper headwater areas of the various streams.

Accessible lengths of streams were calculated from topographical maps. Accessible length was defined as the amount of stream available to fish, measured from the mouth to the 1220 m contour, to an obstruction impeding or blocking upstream passage (e.g. waterfalls) or to the start of a stream section where gradient is greater than 5%. The 5% gradient value was defined as a termination of accessible habitat on the basis of field observations and literature reports (Platts 1974). Accessible lengths were calculated only for the mainstem, therefore, the value underestimates total available length by omission of tributaries and lakes.

Accessible length values were used to derive a potential spawning length, i.e. length of river with suitable spawning habitat. This length was determined by subjective evaluation of reach data and field observations for each stream. These estimates should only be considered as approximate values whereby the primary purpose was to permit a comparison between streams and reach basins. Subjective measurements were made on the following parameters within a given reach (Oguss et al. 1975):

1. stream bank (structure, stability and vegetation),
2. stream bed (type and size class of bed material; relative abundance of types by rank; relative degree of compaction of bed materials),
3. bars (structure, extent and frequency),
4. relative extent of meandering by stream,
5. percentage of pools relative to length of reach,
6. slope (inclinometer Model PM-5/360 PC Suunto Instrument Co.),

7. air and water temperatures (pocket thermometers),
8. cross-sectional profile (usually in lowest reach) and estimate of current to determine instantaneous discharge,
9. subjective evaluation of spawning and rearing potential.

WATER CHEMISTRY

During the survey, thirty-six water samples were collected from an equal number of rivers and streams. The samples were placed in two bottles, i.e. 1130 ml and 225 ml (unpreserved and unfrozen), and shipped to B.C. Research, Water Resources Chemical Laboratory, Vancouver. The following analyses were performed on each sample: pH, total alkalinity, total hardness, total and filterable residue, dissolved magnesium, dissolved calcium, specific conductance, inorganic and organic carbon, dissolved nitrite and nitrate nitrogen, and total phosphorous. Certain tests were omitted at some sites because of sample deterioration.

FISHERIES RESOURCE

Several methods were utilized to capture adults, juveniles and eggs within surveyed streams. Most fish were collected with monofilament nylon gillnets of various stretch mesh sizes (38 mm, 51 mm and 64 mm) and lengths (6 m to 7.5 m). Angling with lures and/or flies was attempted in almost every tributary. Beach seines were used mainly in the Parsnip River because it was accessible and navigable by car-top boat. Prima-cord explosive was frequently used to sample a wide size range of fish than could not be captured by conventional methods. Juvenile fish and fry were usually captured with a dip net. Fyke nets (30 cm by 60 cm with aluminum frames and 6 mm mesh net, anchored by steel rods) were set for 24 - 48 hours in shallow riffles to monitor downstream movement. For more intensive egg sampling, a portable hydraulic pump powered by a Homelite 2-cycle engine and mounted on a pack frame (with assorted water hoses and pipes) was used to flush large amounts of gravel through a net for subsequent sorting.

A series of data was recorded for each fish collected, including species, fork length (to nearest mm), weight (to nearest g), sex, sexual maturity, (adapted from Kesteven 1960; Appendix A), capture location and method.

Scales for age determination were taken from rainbow trout, mountain whitefish, lake whitefish and Arctic grayling. Scales were sampled from an area anterior to the dorsal fin and above the lateral line, and from the left side of the fish whenever possible. Otoliths were collected for aging Dolly Varden. Observations were also made on food items found in stomachs and, occasionally, on gonadal volumes.

RESULTS

HABITAT ASSESSMENT

Figures 2, 23, and 35 show the tributaries surveyed in the three basins of Williston Lake in 1975. Physical information relating to these tributaries of the Parsnip, Finlay and Peace Reach basins is presented in Tables 2, 3, and 4, respectively. Further data on selected reaches within tributaries of the Parsnip, Finlay and Peace Reach basins are presented in Appendices B, C, and D respectively.

WATER CHEMISTRY

Disregarding differences in sampling dates and locations, the data are ranked in order of total hardness (ppm of CaCO_3) (Table 5). These data show the primary difference between streams sampled lies in total dissolved solids (TDS). Most dissolved solids are ions, primarily calcium and magnesium, contributing to the hardness of water. The large quantities of these aqueous ions is a function of the geological properties of a particular stream watershed and the sampling time (spring runoff would reduce the TDS measurement). The hardness levels would be considered especially high for natural, undisturbed waters (Water Resources Laboratory, pers. comm., 1975). The turbidity (total solids less TDS) is low for streams. The dissolved nutrients, e.g. phosphorous, nitrates, organic carbon, are all low for streams.

TABLE 2
PARSNIP REACH BASIN STREAM DESCRIPTION

Tributary	Sample Date	Latitude	Longitude	M.T.S. Map-Sheet	Total Length (km)	Access. Length (km)	Potent. Span Length (km)	Width (meters)	Dis-charge (m ³ /sec.)	Average Gradient (%)	Temperature		Drainage Area (km ²)
											Air	Water	
Anzac	6-9-75	54°	122°	93J	100	100	25		47.5	0.5	15	10	--
Blackwater	26-06-75	55° 42'N	123° 45'W	930	40.6	46	23	8-10	6.8-9.4	1.0	11	10	580.7
Centennial	30/06	56° 01'N	124° 15'W	93N	11.6	6.0	2.0	6.5	1.7	5.0	16	7	64.5
Cut Thumb	19/07	55° 33'N	123° 20'W	930	28.6	3.5	1.5	15	4.0	2.0	18.0	11.0	128.2
Eklund	28/06	55° 50'N	123° 57'	930	19.2	15	6	37	13.4	3.0	13	6.5	250.0
Hominka	10/11	54°	122°	93J	45	45	11	--	--	--	-3	0.5	--
Izaac	04/09	55°	123°	930	21	21.0	10.0	--	3.2	2.0	13.0	8.5	--
Kimta	--	55°	123°	930	4	2.0	4.0	--	--	5.0	--	--	--
Lignite	10/09	55° 10'N	123° 09'W	930	26.0	26.0	10.0	5.5	0.53	1.8	10	8.5	155.0
McLeod	8/11	54°	123°	93J	--	--	--	7	--	--	-3	0.5	
Manson	26/06	55° 43'N	123° 50'W	930	93.0	83.0	40.0	47.0	35.5	0.6	13	9	1532.3
Mischinsinka	--	55° 11'N	123° 04'W	930	30.5	--	--	16.0	--	1.8	--	--	237.5
Mischinka	12/09	55°	122°	930	70	70.0	18.0	--	7.7	1	10.0	9.0	--
Mugaha	13/06	55° 24'N	123° 11'W	930	25.5	14.0	5.0	9.0	12.9	2.2	11.0	5.0	152.0
Nation	10/09	55° 27'N	123° 37'	930	215.5	126	60	60-70	--	0.25	1.0	12.0	5883.9

TABLE 2 (continued)
PARSNIP REACH BASIN STREAM DESCRIPTION

Tributary	Sample Date	Latitude	Longitude	N.T.S. Map-Sheet	Total Length (km)	Access. Length (km)	Potent. Spawn Length (km)	Width (meters)	Dis-charge ($m^3/sec.$)	Average Gradient (%)	Temperature		Drainage Area (km^2)
											Air	Water	
Ouinca	18/09	56° 08'N	124° 27'W	94C	219.5	219.5	110	45	--	0.25	15	10	5851
Oslinta	--	56° 05'N	124° 32'W	94C	114.0	114.0	50	--	--	0.5	--	--	2051.6
Pack	9/09	55° 06'N	123° 06'W	930	125.0	80.5	30.0	45	no measur	0.05	17.0	14.0	3994
Parsnip	7/09	55° 10'N	123° 04'W	930	175.5	145.0	43.0	75	98-473	0.3	14.0	8.0	4669
Patsuk	18/6/75	55° 36'	123° 25'	930	2.2	--	--	26	9.9	--	12	6.5	--
Reynolds	7/09	54°	122°	930	37	37.0	4.0	--	2.2	.8	14	8	--
Scott	21/06	55° 43'N	123° 35'W	930	25.0	21.0	7.0	15	no profil	2.2	18.0	5.0	196.8
Six Mile	--	55° 37'N	123° 24'W	930	11.6	8.1	8.1	--	--	3.4	--	--	133.4
Strandberg	29/06	55° 56'N	124° 05'W	93N	16.8	19.0	8.0	16.5	2.1-5.0	3.0	19	9	129.0
Table	23/10	54°	122°	93J	48.0	48	12	25.0	--	--	1.0	2.5	--
Tony	20/07	55° 27'N	123° 16'W	930	23.0	16.0	6.0	14.0	--	3.6	17.0	5.0	107.3
Tuty	15/06	55° 26'N	123° 14'W	930	17.0	4.0	1.2	12.0	3.4	3.2	12.0	5.0	57.7
Unnamed "B"	29/06	55° 56'N	124° 05'W	93N	15.1	11.5	2.0	4.5	0.6	4.0	19	9	32.3
Unnamed "C"	25/06	55° 31'N	123° 31'W	930	8.8	8.8	3.5	2.3	0.06	2.0	14	12.5	20.2
Weston	22/06	55° 49'N	123° 41'W	930	18.0	12.5	6.0	10.5	5.9	3.0	18.0	6.0-7.5	114.1

TABLE 3

FINLAY REACH BASIN STREAM DESCRIPTION

Tributary	Sample Date	Latitude	Longitude	N.T.S. Map-Sheet	Total Length (km)	Access. Length (km)	Potent. Spawn Length (km)	Width (meters)	Discharge (m ³ /sec.)	Average Gradient (%)	Temperature		Drainage Area (km ²)
											Air	Water	
Chunamon	Oct. 17/75	56° 14'	124° 21'	94C	7.8	4	.5	1		7	6	4	40.3
Chowika Creek	July 28	56° 44'	124° 45'	94C	39	39	16	12	29.2	1	12	7	510.1
Collins Creek	July 26	56° 27'	124° 22'	94C	26	26	10	7.5	2.2	2	14	9	140.3
Davis River	July 27	56° 33'	124° 28'	94C	39	39	.5	18	15.2	1	14	9	478.8
Factor Ross Cr	Oct. 17	56° 37'	124° 41'	94C	17.4	17.4	.2	5	0.97	3	7	4	172.6
Finlay River	Sept. 18	56° 59'	125° 01'	94C	278	100	50	50-70	--	0.2	9	7	16,900
Ingenika R.	Sept. 17	56° 45'	124° 59'	94C	119	119	60	40-50	--	0.5	11	7	5,491
Ivor Creek	July 30	56° 52'	124° 53'	94C	10.6	4	1	3.5	1.16	4.5	16	6	49.6
Lafferty Creek	July 25	56° 21'	124° 19'	94C	29	29	11	9	3.2	2	17	10	231.9
Mesilinka R.	Sept. 18	56° 08'	124° 27'	94C	144.5	140	70	25	--	0.4	13	7	3285
Ospika River	Sept. 16	56° 20'	123° 57'	94C	111	111	26	17-30	--	0.5	10	7.5	2745
Police Creek	July 29	56° 45'	124° 45'	94C	11.5	11.5	1	4	.45	4	13	9.5	57.3
Teare Creek	Oct. 17/75	56° 17'	124° 26'	94C	5.7	2.5	0.3	3/4	--	10			18.2

TABLE 4
PEACE REACH BASIN STREAM DESCRIPTION

Tributary	Sample Date	Latitude	Longitude	N.T.S. Map-Sheet	Total Length (km)	Access. Length (km)	Potent. Span Length (km)	Width (meters)	Drainage Area (km ²)	Dis-charge (m ³ /sec.)	Average Gradient (%)		Temperature	
													Air	Water
Adams Creek	05/08/75	56°10'N	122°36'W	94B	12.0	5.0	0.5	4	58.6	0.85	7		12	5
Bernard Creek	02/08/75	56°03'N	123°21'W	94B	20.0	1.5	0.3	10	106.5	5.05	3		13	7
Carbon Creek	08/08/75	55°59'N	122°41'W	930	46.0	46.0	23.0	28	814.5	9.20	1		17	9
Clearwater Cr.	10/08/75	55°54'N	123°09'W	930	49.5	42.0	21.0	19	635.4	12.9	1		13	8
Ducette Creek	10/08/75	55°56'N	123°08'W	930	22.0	16.0	4.0	10	189.5	N/A	2.5		12	9.5
Dunlevy Creek	05/08/75	56°10'N	122°22'W	94B	15.0	4.5	3.0	6	169.4	1.31	3.2		16	13.5
Nabesche R.	03/08/75	56°07'N	123°10'W	94B	50.2	10.0	4.0	24	815.6	14.69	1		14	10
Pardonet Creek	09/08/75	56°02'N	123°02'W	930	12.5	1.5	0.7	4.5	71.0	0.55	4		N/A	8.5
Point Creek	09/08/75	55°58'N	123°13'W	930	17.0	12.0	4.0	12.5	100.4	4.2	3		12	8
Schooler Creek	04/08/75	56°08'N	122°47'W	94B	27.0	27.0	5.4	8	285.5	4.06	2		10	6.5
Selwyn Creek	11/08/75	56°01'N	123°32'W	930	18.5	3.0	0.3	10	163.7	5.2	3		14	7
Stott Creek	07/08/75	56°06'N	122°28'W	94B	6.8	0	0	N/A	31.4	N/A	13.5		N/A	N/A
W. Nabesche R.	03/08/75	56°06'N	123°10'W	94B	285.0	0	0	2.5	253.6	N/A	2		N/A	N/A
Wicked River	01/08/75	56°06'N	123°40'W	94B	31.0	0.2	0.2	25	398.8	14.0	1.5		11	7
Unnamed Cr. A	07/08/75	56°07'N	122°37'W	94B	6.8	0.8	0.1	3	26.6	0.14	11.5		14	N/A

Table 5. Chemical analyses of water samples collected from Williston Lake tributaries in 1975.

Stream	Basin Reach	Site	Day	Month	pH	Total Dissolved Solids (ppm)	Total Alkalinity (ppm)	Total Hardness (ppm)	Dissolved NO_2^- (ppm) (all L)	Inorganic Carbon (ppm)	Dissolved Mg (ppm)	Total Solids (ppm)	Specific Conductance (uohm/cm)	Inorganic Carbon (ppm)	Dissolved NH_4^+ (ppm)	Total Phosphorus (ppm)	Dissolved Calcium (ppm)
Strandberg		2	30	6	6.7	26	8.5	9.5	.005	1	0.5	28	24	4	<.02	.006	2.9
Ecklund	1	30	6	7.0	32	12.0	11.3	.005	1	0.6			26	5	<.02	.010	3.5
Centennial	1	30	6	7.0	28	12.7	13.6	.005	1	0.8			33	3	<.02	.005	4.2
Strandberg	1	22	6	7.0	34	12.8	15.6	.005	3	0.9			36	4	<.02	.011	4.8
Blackwater	4	30	6	7.2	48	19.0	18.2	.005	5	0.7		56	41	4	<.02	.006	6.1
Mischinsinika	1	11	9	7.4	44	27.8	30.2	.005	6	1.4			65	3	.02	.003	9.8
Unnamed "B"	3	30	6	7.3	74	33.3	34.0	.005	7	1.9		92	68	10	<.02	.026	10.5
Tony	2	22	6	7.7	46	29.3	34.1	.005	5	1.6		52	71	1	.07	.013	11.0
Blackwater	1	30	6	7.3	64	36.0	36.0	.005	8	1.4		70	73	7	<.02	.010	12.1
Blackwater	2	30	6	7.2	74	42.7	44.1	.005	11	1.8			88	8	<.02	.011	14.7
Manson	1	30	6	7.6	70	44.3	45.7	.005	10	2.6			92	4	<.02	.010	14.0
Nation	1	11	9	7.8	70	46.5	47.1	.005	11	2.7			99	3	<.02	.006	14.4
Cut Thumb	3	22	6	6.9	60	46.5	49.9	.005	10	4.6			101	<1	.03		12.4
Meslinika	1	18	9		70		55.2				2.0	72	126			<.003	18.8
Tutu	3	22	6	7.9	70	51.0	55.3	.005	12	1.3		72	112	1	<.02	.007	20.0
Mugana	1	22	6	7.9	72	52.4	57.7	.005	12	2.3			118	2	.04	.019	19.3
Pack	1	11	9	7.7	80	58.5	59.4	.005	14	3.5		82	122	7	<.02	.010	18.0
Parsnip	1	11	9	7.8	78	59.3	61.2	.005	14	3.4			124	2	.03	.009	18.9
Omenica	1	20	9		80		64.6				3.8	82	134			.003	19.6
Scott	1	22	6	8.0	76	63.3	66.3	.005	15	3.8		88	132	<1	.04	.008	20.3
Patsuk	1	22	6	8.0	80	59.4	68.6	.005	15	6.1			135	1	.02	.010	17.4
Kimta	1	22	6	8.0	84	62.7	70.9	.005	17	4.8		88	143	<1	.05	.010	20.5
Weston	4	22	6	8.0	82	69.0	73.2	.005	17	3.6		96		1	<.02	.008	23.4
Lafferty	4	18	9		98		74.7				6.2	100	157			.003	19.7
Misinchinka	1	11	9	7.8	92	73.3	75.8	.005	18	4.4		98	153	1	.07	.010	23.1
Ingenika	1	18	9		98		78.5				5.6	100	158			.006	22.2
Weston	3	22	6	8.1	92	76.3	79.6	.005	18	4.0		100		2	.02	.013	25.3
Scovil	1	11	9	7.9	114	96.2	94.3	.005	24	4.9			187	4	<.02	.007	29.7
Lignite	1	11	9	7.7	124	94.5	94.9	.005	25	4.5			191	<1	.04	.003	30.6
Clearwater	5	16	9	8.1	110	88.4	95.6	.005	23	6.9			184	<1	.03	.004	26.9
Finlay	1	18	9		126		101.0				6.9	128	201			.005	29.1
Six Mile	6	22	6	8.1	140	113.0	120.0	.005	28	6.1			232	2	.06	.012	38.1
Chowika	4	18	9		154		135.0				9.0	156	262			.003	39.2
Unnamed "C"	1	30	6	8.0	210	180.0	183.0	.005	45	8.2			330	10	<.02	.008	59.8
Ospika	1	16	9	8.2	198	163.0	185.0	.005	42	13.1			335	<1	.04	.007	52.5
Ospika	2	16	9	8.2	202	165.0	187.0	.005	43	13.5			339	<1	.03	.008	52.5

Streams with the lowest TDS values were located on the west side of the Parsnip Reach Basin while the highest values were found in streams on the east side of the Finlay Reach Basin. Some streams, e.g. Six Mile Creek and Unnamed Creek "C" (Parasnip Reach Basin) have high TDS values because they drain small, stagnant beaver ponds which are highly productive. There was no apparent correlation between high TDS levels and fish productivity. Northcote and Larkin (1956) related high fish productivity in lakes with TDS measurements of greater than 100 mg/l. They also found that lakes with a TDS of less than 50 mg/l were relatively unproductive. Only a few of the streams surveyed in this study had TDS values of less than 50 mg/l and they were not the most unproductive of all streams sampled. Strandberg Creek (Parasnip Reach Basin), for example, had a very low TDS but was one of the most productive creeks surveyed. Streams with a TDS of near 100 mg/l were often quite productive, e.g. Chowika Creek, while the Ospika River (TDS 200 mg/l) was not particularly productive (perhaps because of high turbidity levels) and Unnamed Creek "C" (TDS 210) had no apparent resident fish population (although benthic insect population was high).

FISHERIES RESOURCE

A total of 14 fish species were encountered in the Parsnip, Finlay and Peace Reach basins (Table 6). Fisheries data for game and non-game fish sampled from the different tributaries is presented in Appendix E. The following are brief summaries of fish and, where applicable, angler utilization by tributary for the Parsnip, Finlay and Peace Reach Basins:

Streams of the Parsnip Reach Basin

Anzac River (Fig. 2)

- Reach 1 has excellent habitat for all life history stages.
- abundant spawning habitat for all species especially in Reach 2.
- overwintering habitat is excellent.
- species known to spawn in river include mountain and lake whitefish.
- Dolly Varden may spawn in river.

TABLE 6. Fish species collected from Williston lake tributaries.

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>
Rainbow trout	<u>Salmo gairdneri</u> (Richardson)
Mountain whitefish	<u>Prosopium williamsoni</u> (Girard)
Dolly Varden	<u>Salvelinus malma</u> (Walbaum)
Arctic grayling	<u>Thymallus arcticus</u> (Pallas)
Lake whitefish	<u>Coregonus clupeaformis</u> (Mitchill)
Longnose sucker	<u>Catostomus catostomus</u> (Forster)
Largescale sucker	<u>Catostomus macrocheilus</u> (Girard)
Redside shiner	<u>Richardsonius balteatus</u> (Richardson)
Slimy sculpin	<u>Cottus cognatus</u> (Richardson)
Prickly sculpin	<u>Cottus asper</u> (Richardson)
Peamouth chub	<u>Mylocheilus caurinus</u> (Richardson)
Northern squawfish	<u>Ptychocheilus oregonensis</u> (Richardson)
Lake chub	<u>Couesius plumbeus</u> (Agassiz)
Burbot	<u>Lota lota</u> (Linnaeus)



Figure 2 PARSNIP REACH BASIN TRIBUTARIES SURVEYED IN 1975

Blackwater Creek (Fig. 3)

- several beaver dams in the lower sections.
- creek mouth blocked by drift.
- large rainbow trout population.
- Dolly Varden observed.
- mountain whitefish probably present.
- abundant fry rearing and overwintering habitat.
- tributary "A" supports a small "old" Dolly Varden population, Arctic grayling, rainbow trout and mountain whitefish.
- all these species probably spawn in this tributary.
- tributary "B" has suitable rainbow trout spawning habitat (ripe rainbow where observed) although rearing habitat is limited.
- in tributary "C", ripe rainbow were observed while Arctic grayling and mountain whitefish also probably utilize stream.
- access is by Nation mainline.
- foot access is limited by swampy nature of stream.

Centennial Creek (Fig. 4).

- ripe male rainbow trout collected.
- stream suitable for spawning rainbow trout, Arctic grayling and mountain whitefish.
- fry rearing and overwintering habitat limited.
- fishing pressure heaviest in bay off creek mouth although there is some fishing along the 4 km of stream paralleled by main logging road.

Cut Thumb Creek (Fig. 5).

- Arctic grayling, Dolly Varden, mountain whitefish and rainbow trout captured.

Eklund Creek (Fig. 6).

- no fish captured although rainbow and mountain whitefish observed.
- suitable spawning habitat for rainbow trout, Arctic grayling and mountain whitefish.
- one road crossing and no foot trails.
- fishing pressure very low.

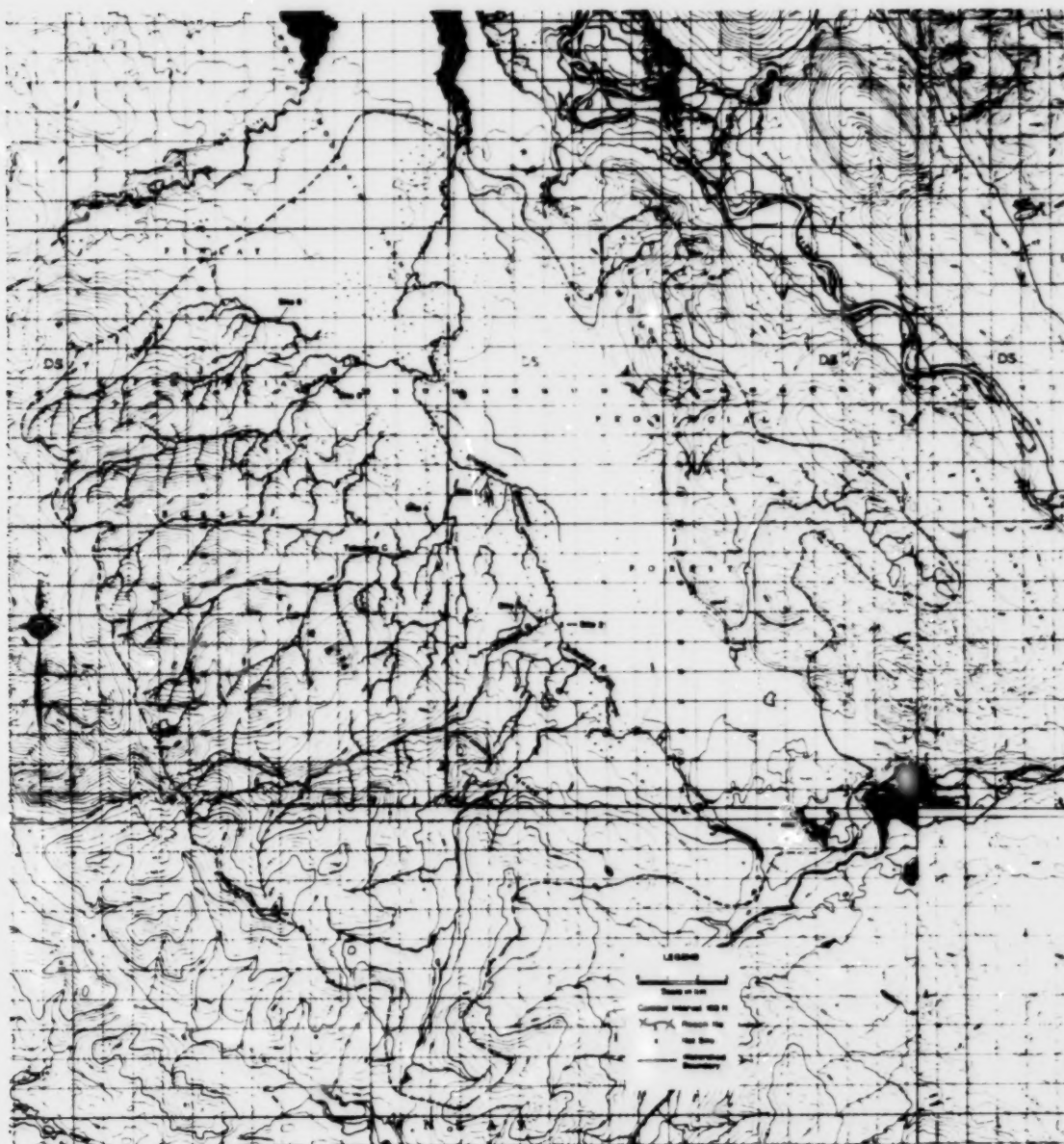


Figure 3 BLACKWATER CREEK WATERSHED SHOWING SURVEY AND GILLNET SITES

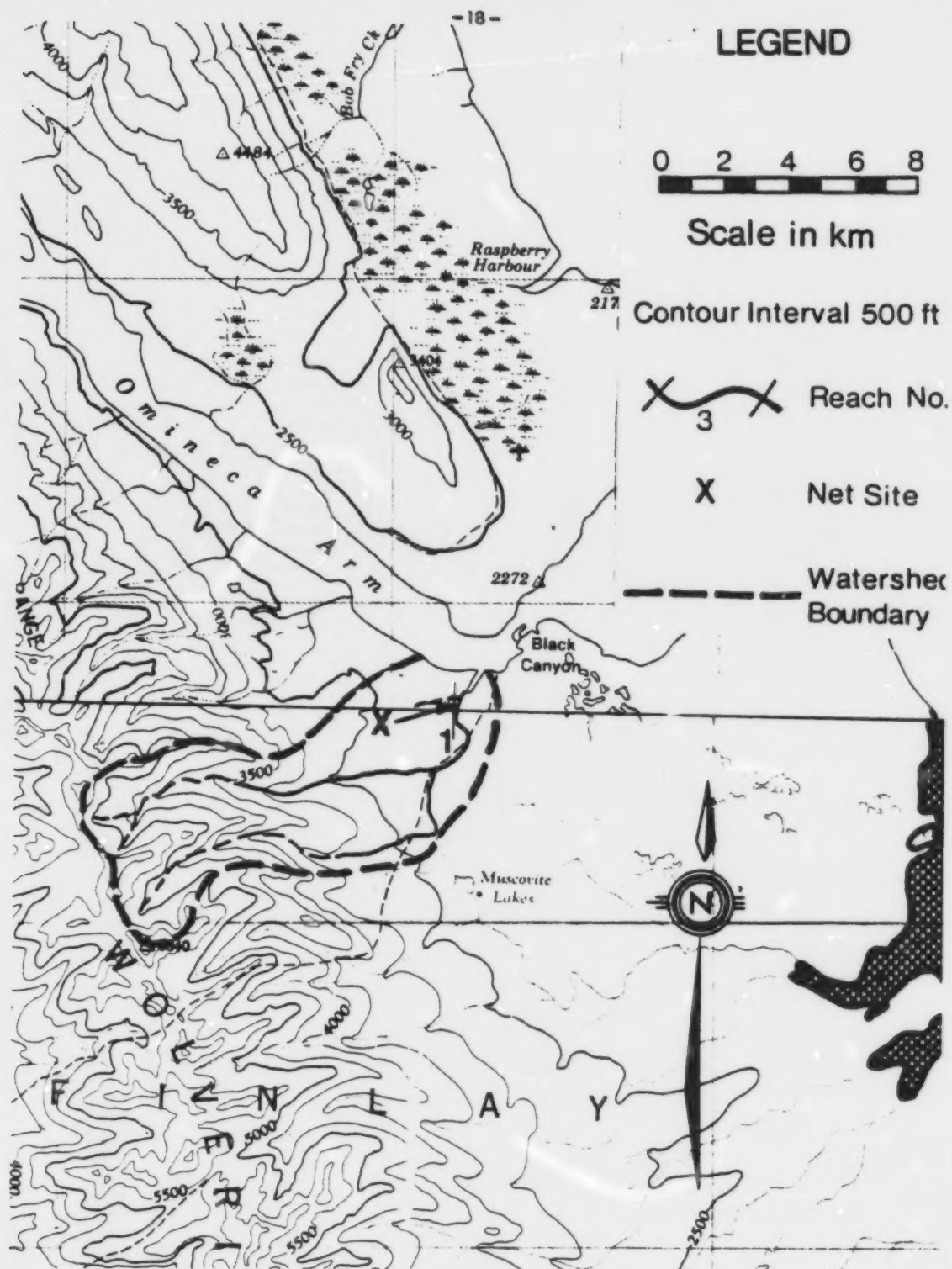


Figure 4 CENTENNIAL CREEK WATERSHED SHOWING SURVEYED REACH AND GILLNET SITE

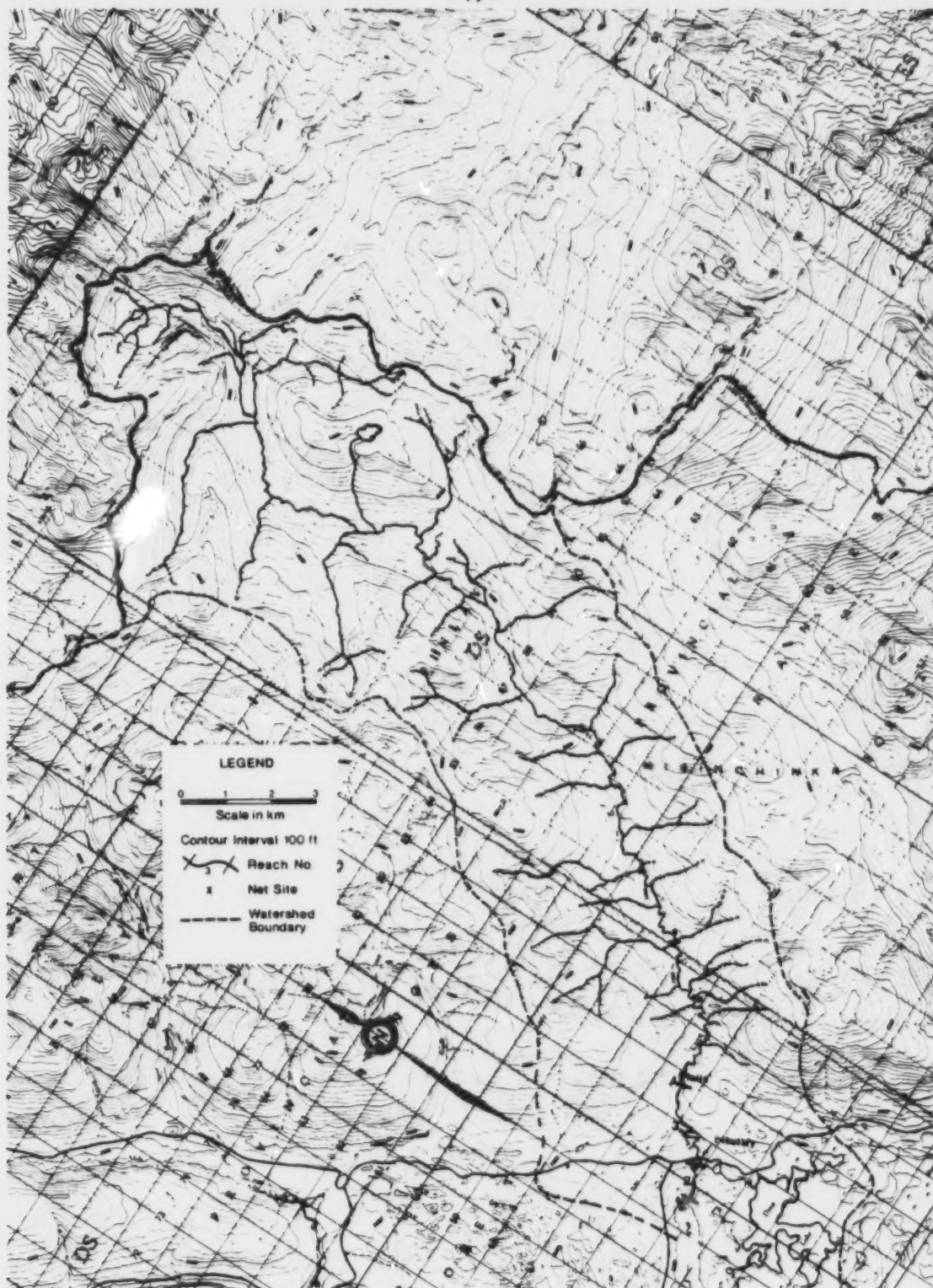


Figure 5 CUT THUMB CREEK WATERSHED SHOWING SURVEYED REACHES

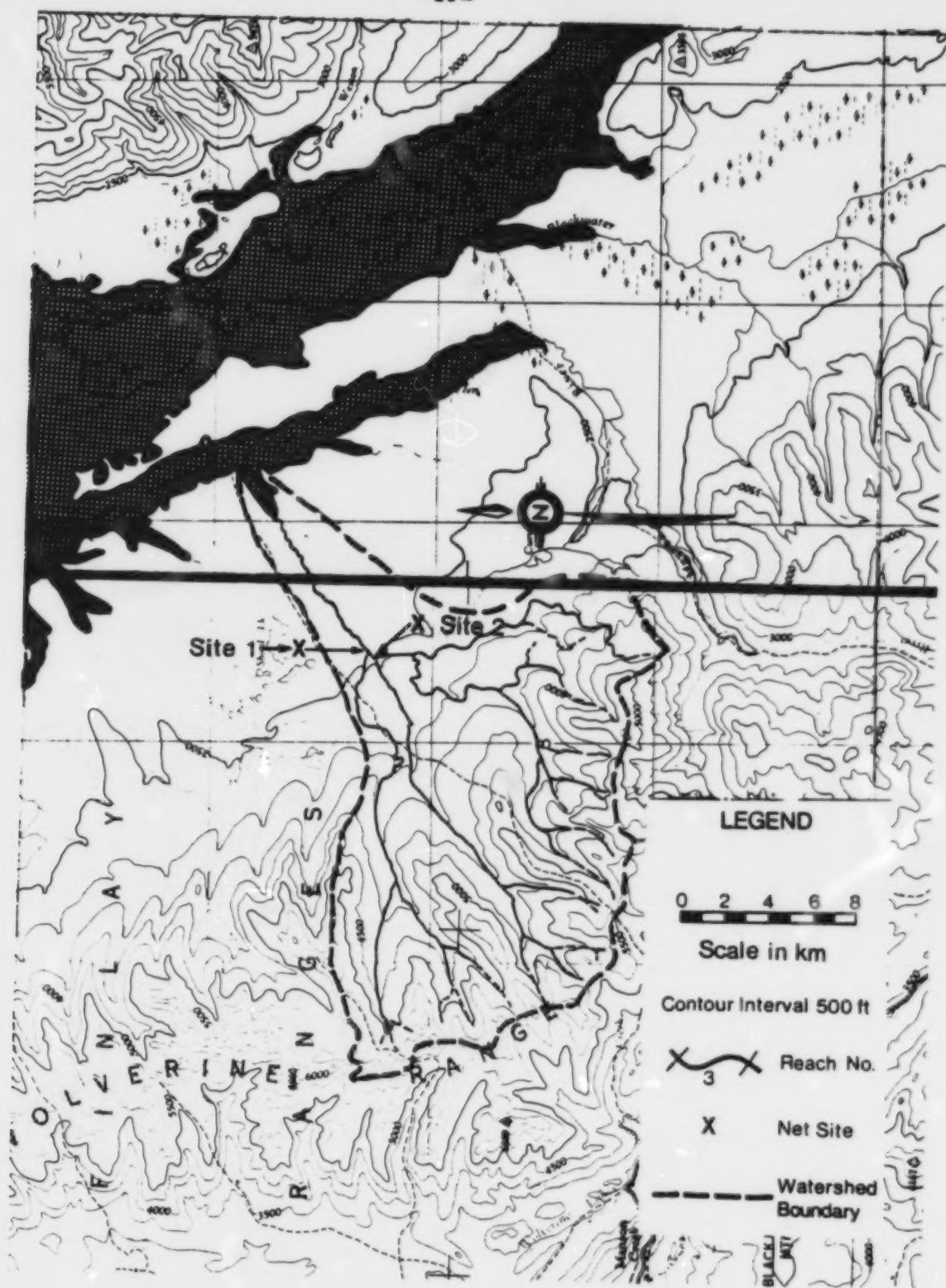


Figure 6 EKLUND CREEK WATERSHED SHOWING SURVEY AND GILLNET SITES

Hominka River

- all major sportfish species probably present.
- spawning habitat may be abundant, however, only marginal habitat observed during survey.
- lake whitefish captured at mouth.

Lignite Creek (Fig. 7).

- spawning and rearing habitat for rainbow trout.
- mountain whitefish and Arctic grayling may use stream for spawning.
- a logging road crosses 3 km from mouth while a spur road parallels creek for 10 km. There are no foot trails.

Manson River (Fig. 8).

- only Reaches 1 and 4 were sampled.
- spent Arctic grayling and rainbow trout captured.
- ripe longnose sucker captured.
- abundant spawning habitat for all species.
- Dolly Varden were probably resident.
- fry rearing and overwintering habitat abundant.
- probably sizeable resident populations of all species.
- Nation mainline crosses 4 km above mouth while a spur road parallels the river for 25 km to Munro Creek (although the road is 0.5 to 1 km removed from the river).
- fishing pressure is relatively light in lower reaches.
- in vicinity of Manson Lakes, natives were seen using gillnets so fishing pressure is probably greater in this area.

McLeod River

- this information pertains to what is now Crooked River and not outlet from Carp Lake.
- Hart Highway parallels river from Summit Lake to south end of Tudya Lake.
- spawning habitat for rainbow trout, Arctic grayling and mountain whitefish.

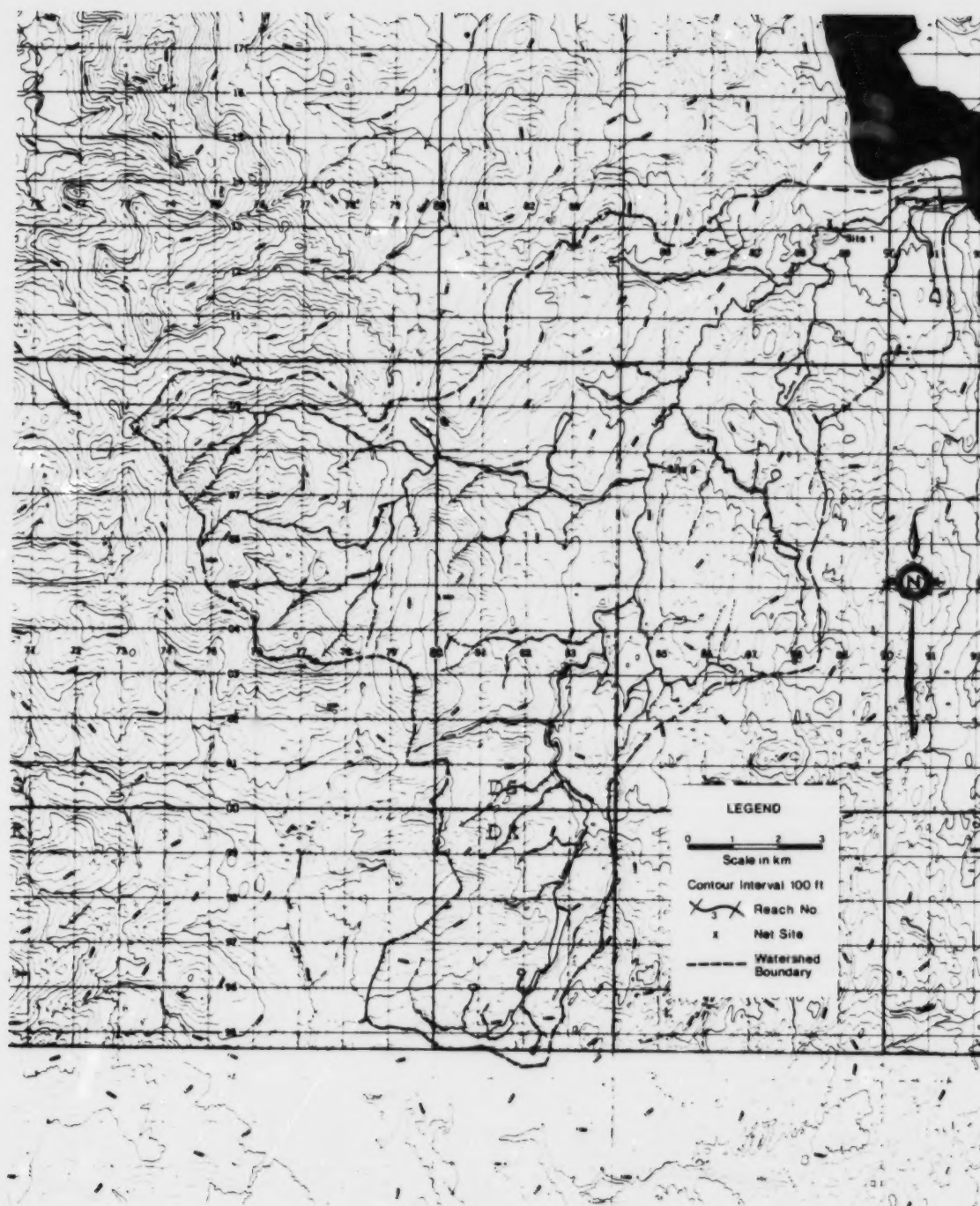


Figure 7 LIGNITE CREEK WATERSHED SHOWING SURVEYED REACHES AND GILLNET AND SURVEY SITES

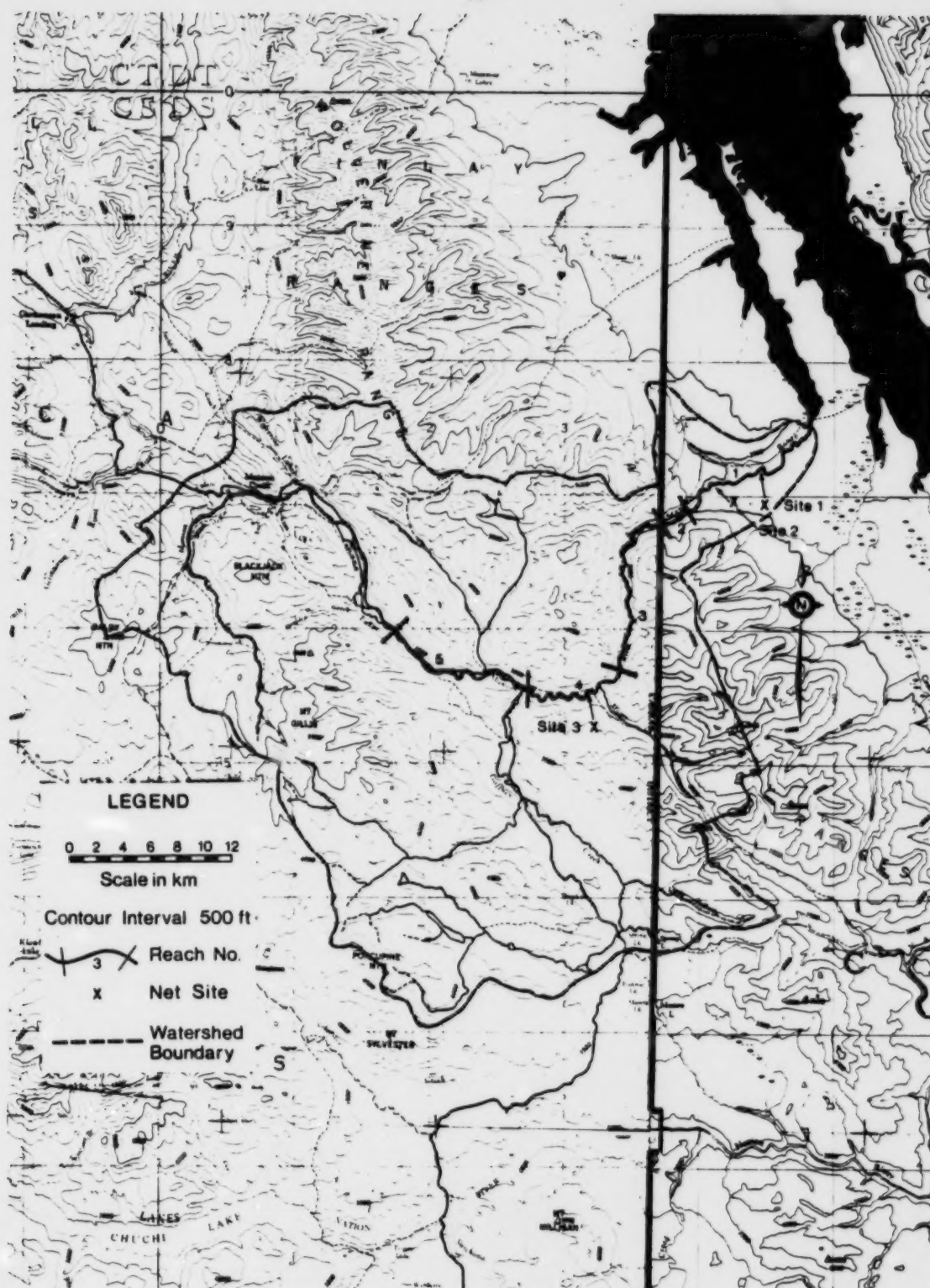


Figure 8 MANSON RIVER WATERSHED SHOWING SURVEYED REACHES AND GILLNET AND SURVEY SITES

McLeod River (continued)

- mountain whitefish confirmed spawning in river.
 - lake whitefish and Dolly Varden probably do not move up this stream to spawn.
 - overwintering habitat limited.

Mischinsinlika Creek (Fig. 9)

- abundant spawning and rearing habitat although few fish captured or seen.
- access at two bridge crossings as well as a poor road to mouth.
- bay and mouth only areas utilized by anglers.
- the tributary, Izaak Creek, has good habitat.

Misinchinka River

- good habitat in Reaches 1 and 3 for spring and fall spawners.
- Reach 2 has relatively poor spawning habitat although mountain whitefish and longnose suckers do spawn in this area.
- fry habitat abundant in all reaches.
- overwintering habitat moderately abundant.
- important for Arctic grayling, rainbow trout, mountain whitefish and Dolly Varden.
- highway provides good access to river.

Mugaha Creek (Fig. 10)

- good spawning habitat, especially in Reach 2.
- spent rainbow trout, mountain whitefish and Arctic grayling collected.
- Dolly Varden may spawn in stream.
- abundant fry rearing habitat but limited overwintering habitat due to low water levels.
- falls in Reach 3 limit upstream utilization.
- access to Reach 1 by road near creek mouth.

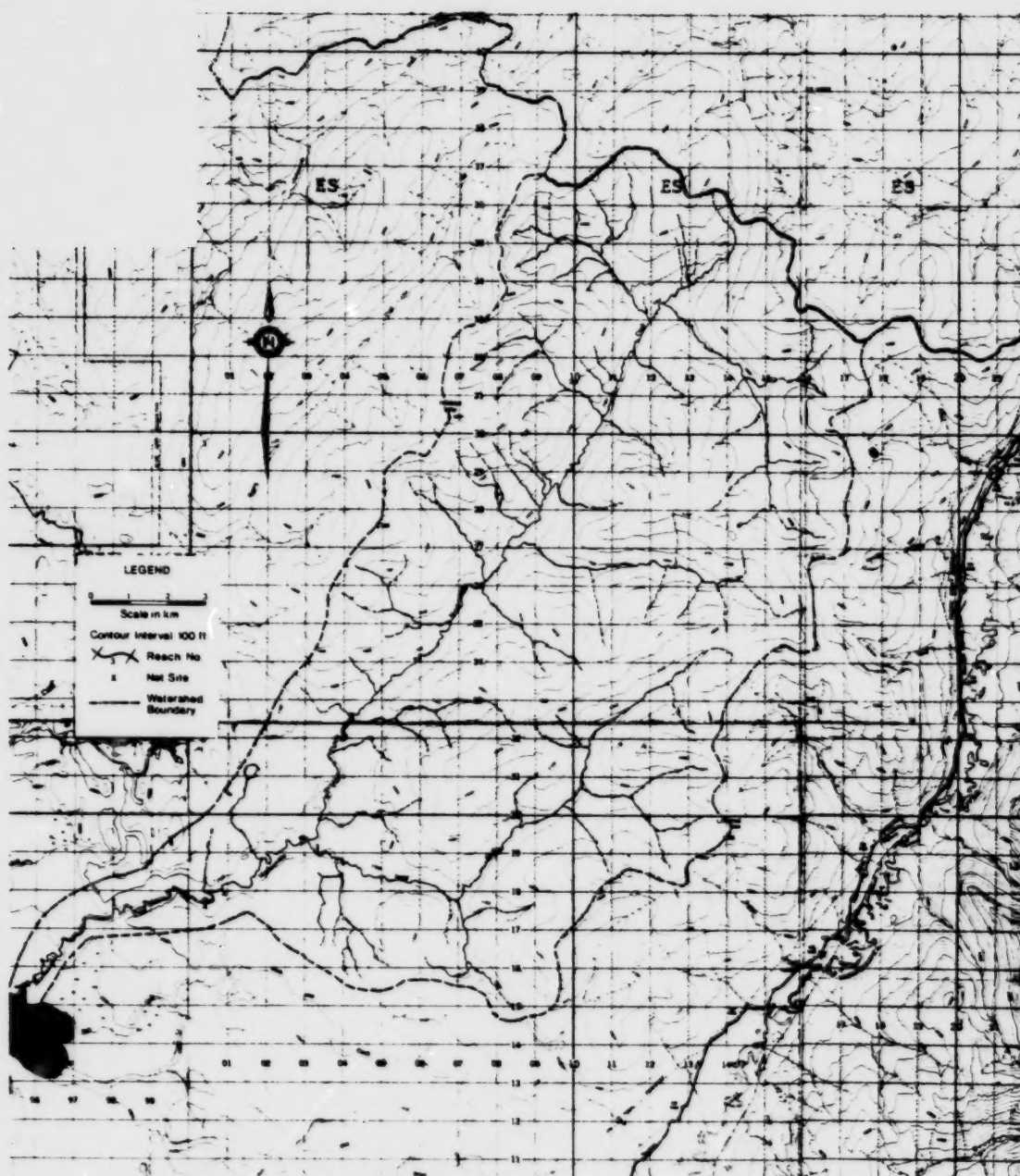


Figure 9 MISCHINSINLIKA CREEK WATERSHED SHOWING SURVEYED REACHES AND GILLNET SITES

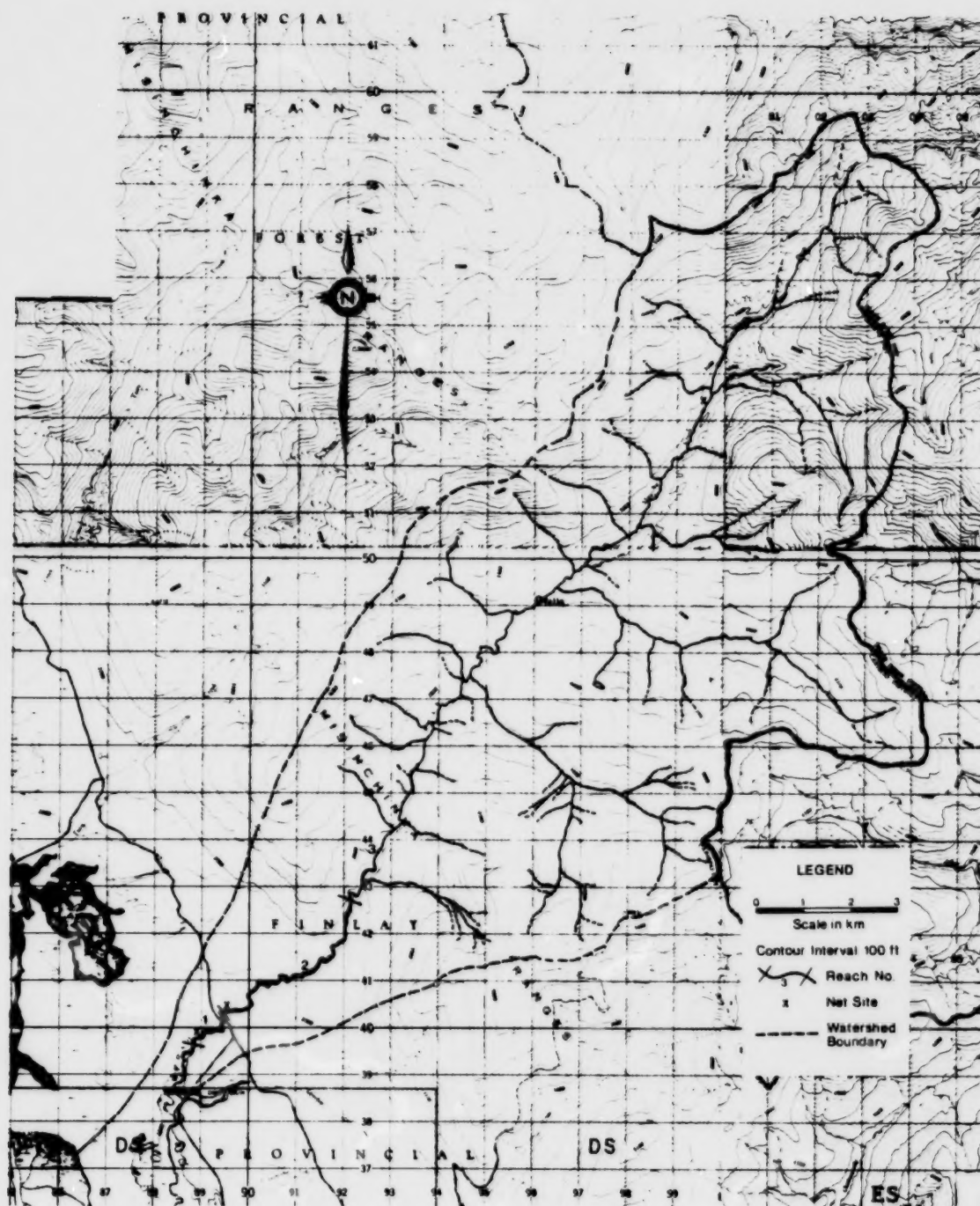


Figure 10 MUGAHA CREEK WATERSHED SHOWING SURVEYED REACHES AND GILLNET SITES

Nation River (Fig. 11)

- spawning by mountain whitefish and possibly Dolly Varden, Arctic grayling, rainbow trout and lake whitefish.
- fry rearing and overwintering habitat abundant.
- only location in surveyed areas of Williston Lake Drainage that lake chub captured.
- boat travel in Reach 1 limited due to rapids.
- a road parallels river; however, it is usually off set at least 1 km except 120 km from mouth at a bridge crossing.

Omineca River (Fig. 12)

- Arctic grayling, Dolly Varden and mountain whitefish spawn in river.
- a spent Dolly Varden collected in Reach 4 indicates this species spawns at least this far upstream.
- squawfish, rainbow trout, suckers, Dolly Varden and mountain whitefish collected in upper reaches.
- road access via Fort St. James to Germansen Landing.
- almost totally navigable by jet boat in lower 100 km.
- Osilinka River, tributary to the Omineca, has 50 km of accessible fish habitat.

Pack River (Fig. 13)

- Reach 1 is essentially part of lake and contains most of same species.
- lake whitefish congregate here.
- Reach 2 suitable for lake whitefish spawning.
- ripe mountain whitefish collected in Reach 2.
- fry rearing habitat is moderately abundant.
- overwintering habitat is available.
- Reaches 4 and 5 provide excellent habitat for juvenile and adult rainbow trout, Arctic grayling and mountain and lake whitefish.
- Dolly Varden may be present in Reaches 4 and 5.
- spawning habitat is available for all aforementioned species.
- lake whitefish in Reaches 4 and 5 are of different form than lake whitefish in Reaches 1 and 2.
- low gradient river with high habitat diversity.

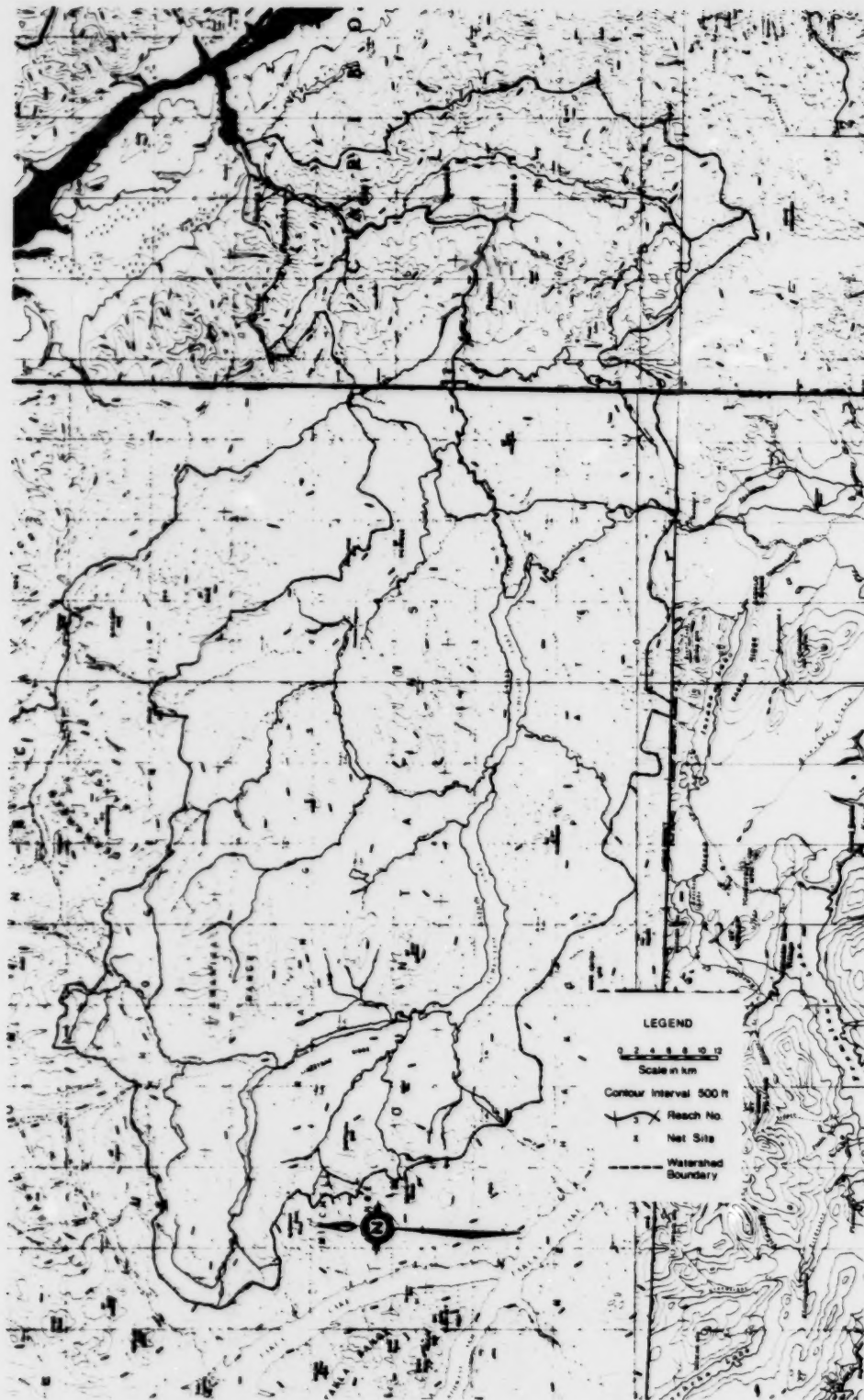


Figure 11 NATION RIVER WATERSHED SHOWING SURVEYED REACHES AND GILLNET AND SURVEY SITES

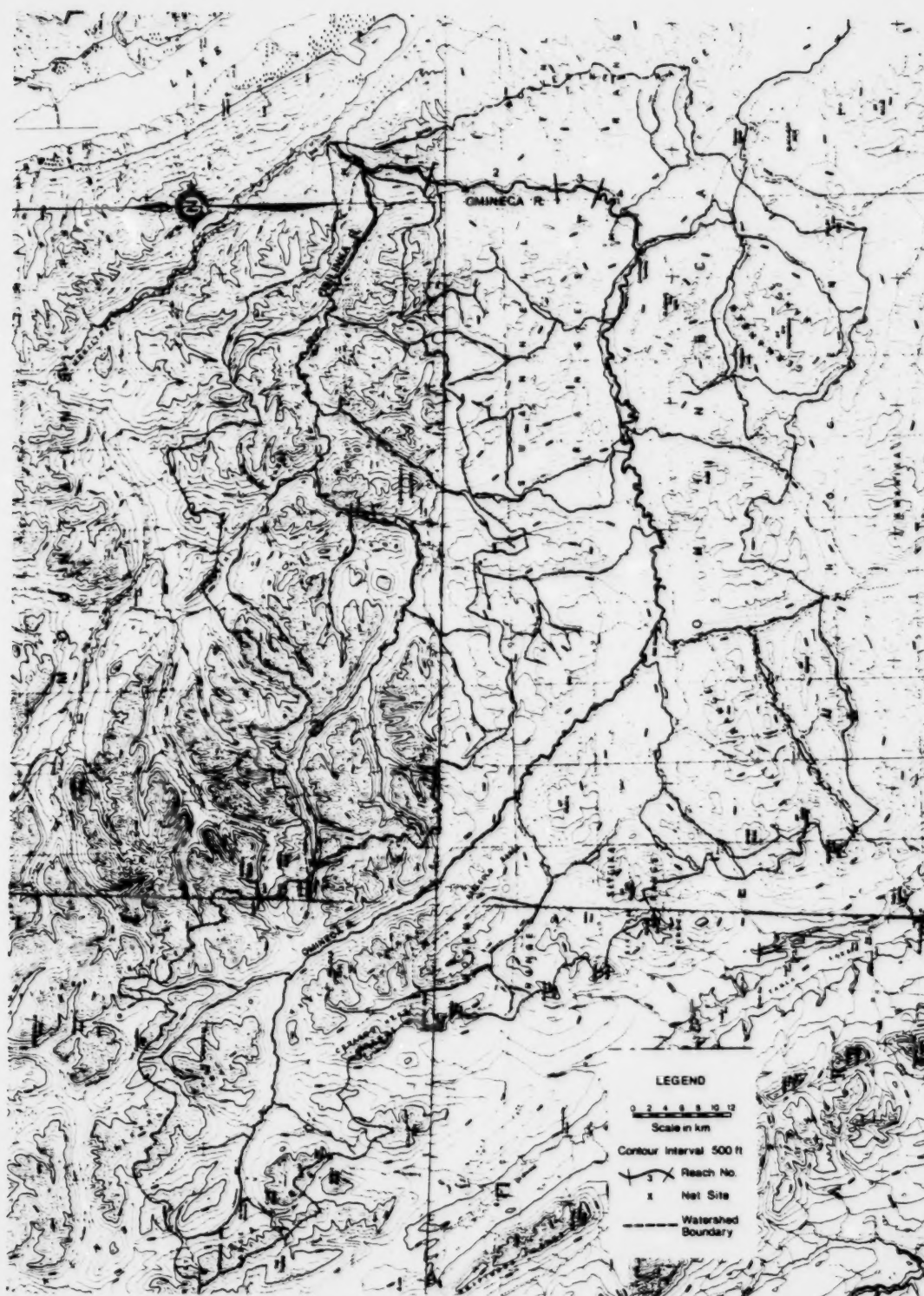


Figure 12 OSILINKA AND OMENICA RIVER WATERSHEDS SHOWING SURVEYED REACHES AND GILLNET SITES

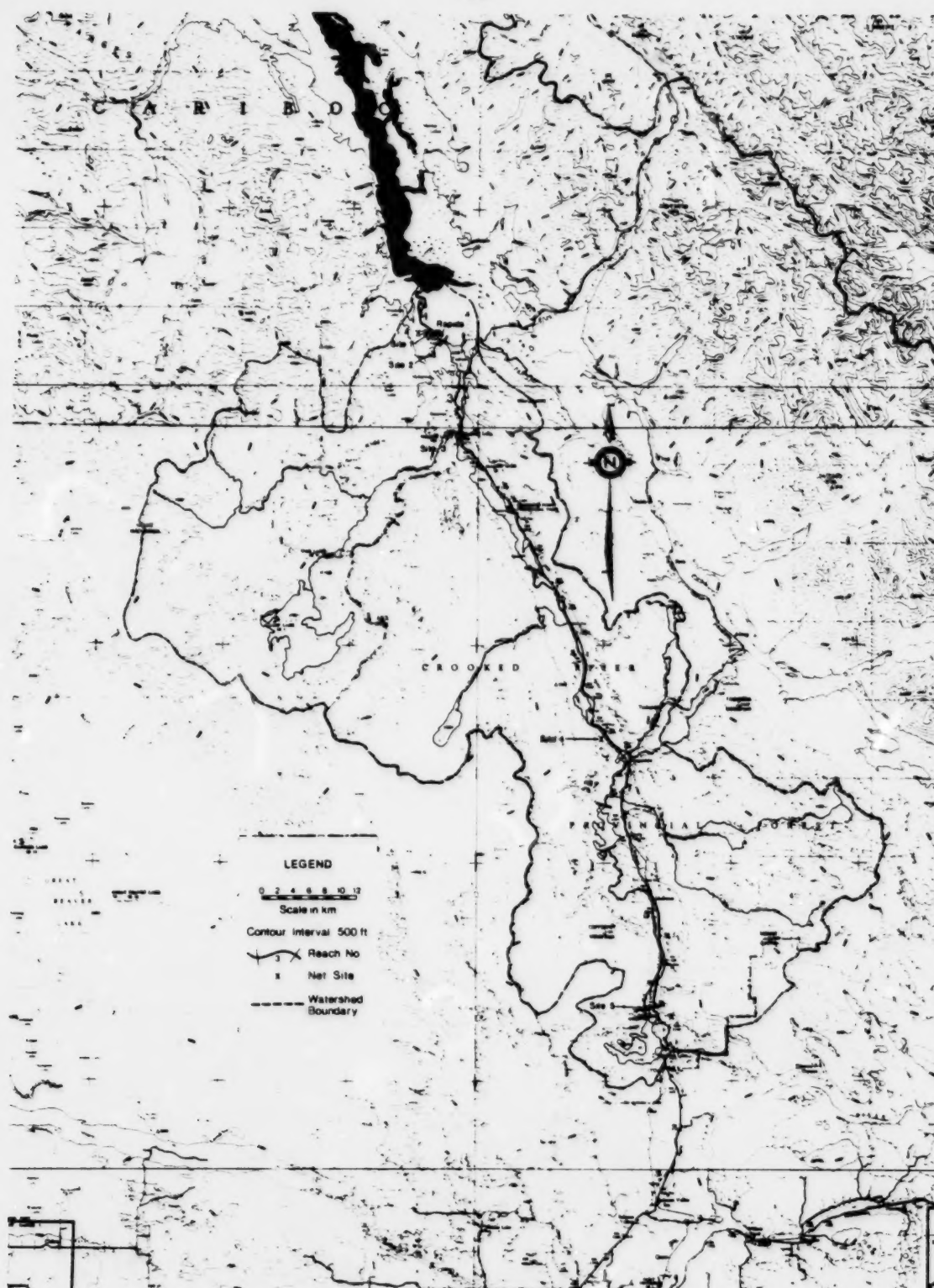


Figure 13 PACK AND CROOKED RIVER WATERSHEDS SHOWING SURVEYED REACHES AND GILLNET AND SURVEY SITES

Parsnip River (Fig. 14)

- Reach 1 supports large resident fish populations.
- immature mountain whitefish, Arctic grayling and longnose sucker captured in Reach 1. Rainbow trout, lake whitefish and Dolly Varden also probably inhabit Reach 1.
- gravel in Reach 1 too large for spawning for rainbow trout and Arctic grayling although there are some smaller gravels available.
- Reach 2 has extensive overwintering habitat.
- Reaches 3 and 4 have good adult and juvenile habitat.
- abundant gravels in Reaches 3 and 4 for spawning Arctic grayling, rainbow trout, mountain whitefish and, possibly, lake whitefish and Dolly Varden.
- Reach 5 has good adult and juvenile habitat for both winter and summer use and also some limited but adequate spawning habitat.
- Reach 6 important for mountain whitefish spawning.
- rainbow trout and longnose sucker probably spawn in Reach 6.
- Arctic grayling, rainbow trout, longnose sucker, largescale sucker, Dolly Varden, mountain whitefish, lake whitefish, squawfish and burbot are resident and spawn in river.
- both lake and river resident fish use river.
- access to river throughout it's length.
- entire river is navigable by jet boat.
- anglers frequent road crossings of river, however, level of use away from roads is low.

Reynolds Creek

- small creek with marginal adult fish habitat.
- good spawning gravels for Arctic grayling, longnose sucker, mountain whitefish and, possibly, rainbow trout.
- moderate amount of fry rearing habitat while overwintering habitat is marginal.

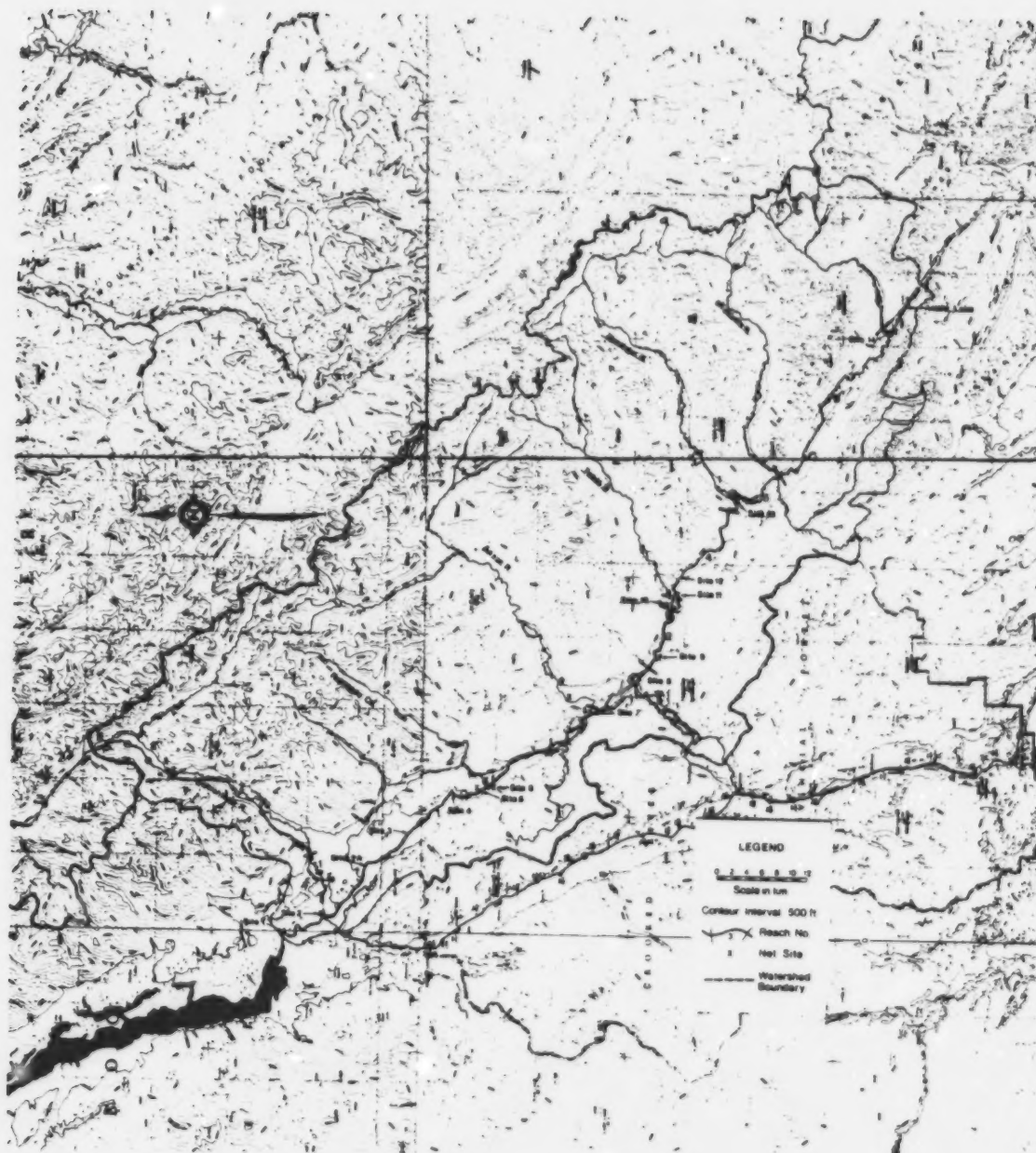


Figure 14 PARSNIP RIVER WATERSHED SHOWING SURVEY AND NET SITES

Scott Creek (Fig. 15)

- unproductive for fish.
- Arctic grayling, rainbow trout and, possibly, mountain whitefish probably spawn in creek.
- road access limited to bridge crossing on main Parsnip Road.
- poor trail access.

Six Mile Creek (Fig. 16)

- ripe and spent Arctic grayling collected in lower reaches.
- rainbow trout abundant in upper reaches.
- rainbow trout fry captured in September were newly hatched.
- limited rearing and overwintering habitat.
- excellent road access to Reaches 2 and 3.
- main Parsnip Road parallels Reach 5.
- angling pressure probably very low.

Kimta Creek (Fig. 16)

- main tributary to Six Mile Creek.
- falls in lower reach probably prevents passage of rainbow trout although they are abundant above falls.
- little angling pressure.

Patsuk Creek (Fig. 16)

- tributary to Six Mile Creek.
- little angling pressure.

Strandberg Creek (Fig. 17)

- spent Arctic grayling and rainbow trout collected.
- Arctic grayling eggs found.
- schools of longnose sucker observed and their eggs found mixed with Arctic grayling eggs.
- Dolly Varden present and feeding on suckers.
- no fry observed although moderate amount of habitat available.
- overwintering potential limited.

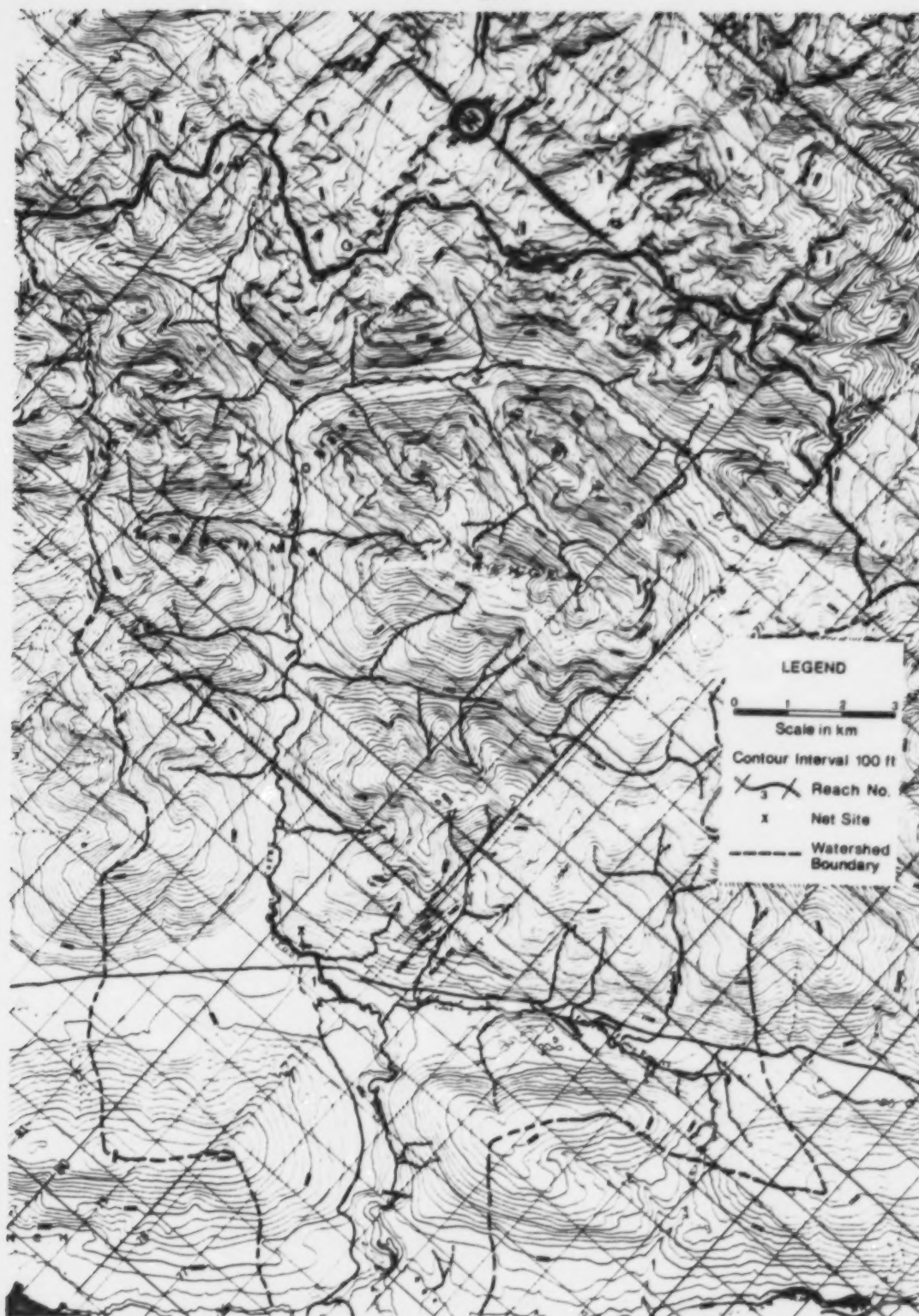


Figure 15 SCOTT CREEK WATERSHED SHOWING SURVEYED REACHES AND GILLNET SITES

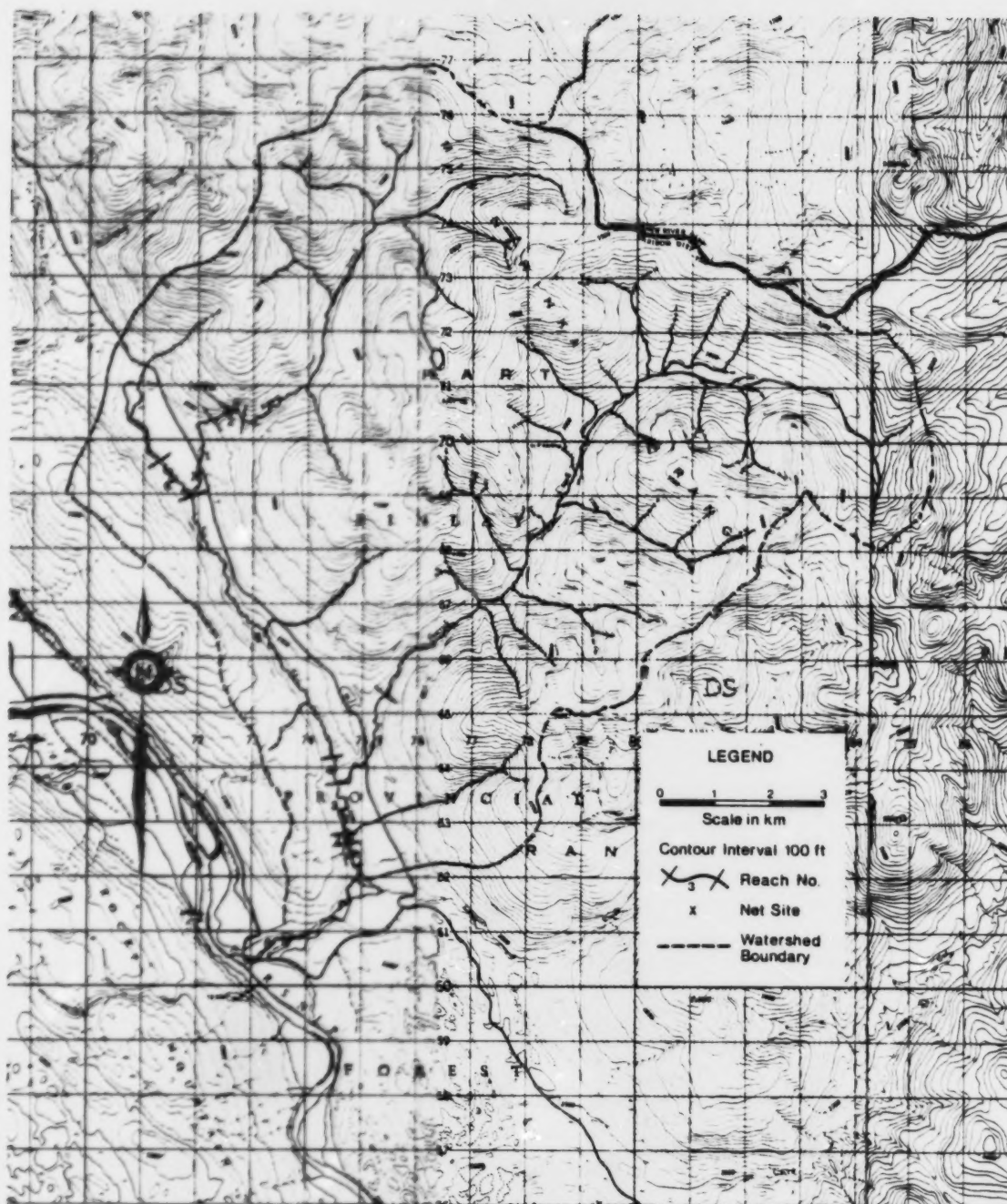


Figure 16 SIX MILE, KITMA AND PATSIK CREEK WATERSHEDS SHOWING SURVEYED REACHES AND GILLNET SITES

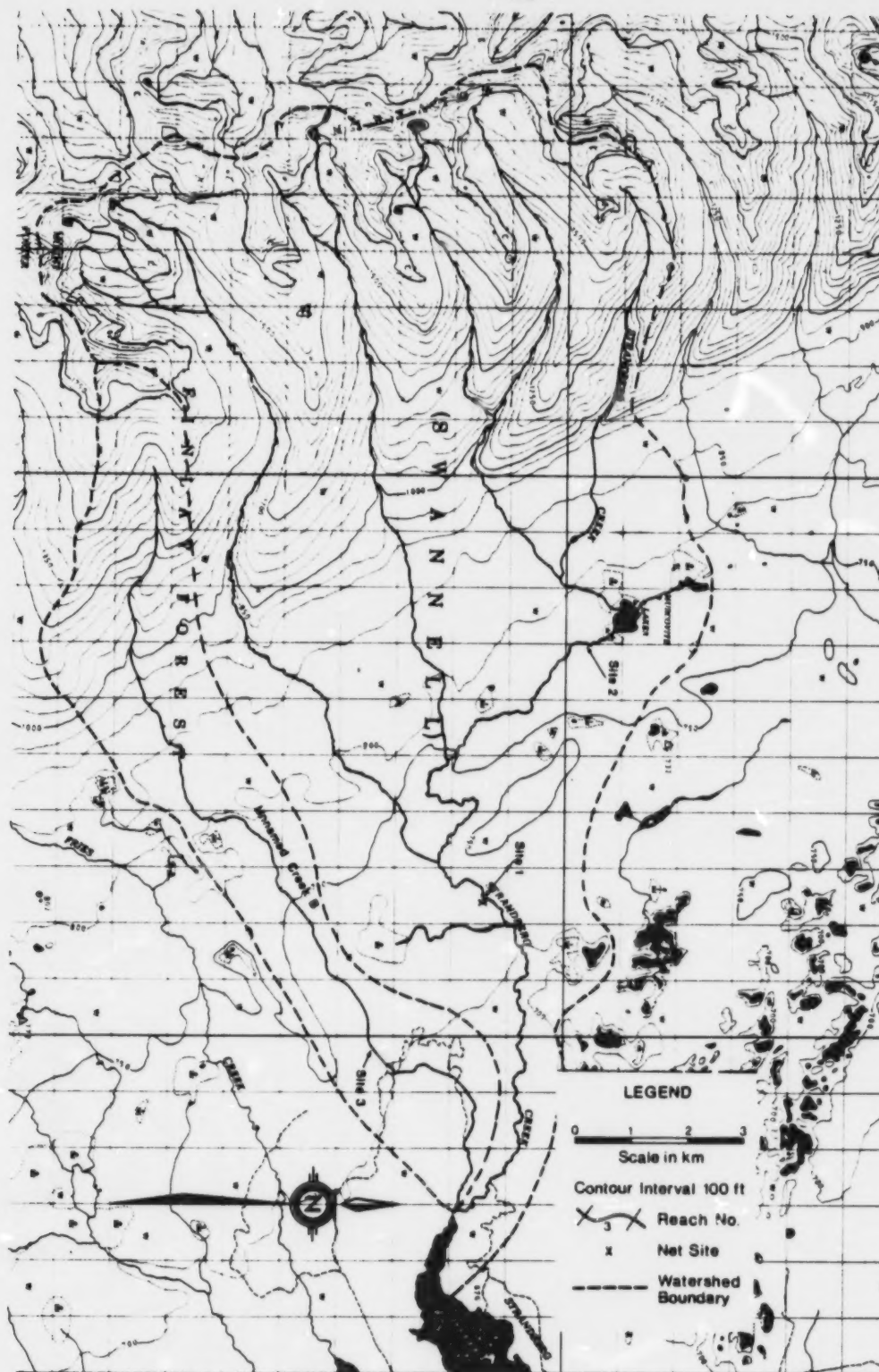


Figure 17 UNNAMED CREEK "B" AND STRANDBERG CREEK WATERSHEDS
SHOWING SURVEYED REACHES AND GILLNET SITES

Strandberg Creek (continued)

- several breached beaver dams at Site 2 provide excellent rearing habitat.
- reports of a large run of rainbow trout up to Muscovite Lakes.
- important for spring spawners.
- fishing pressure light with access limited to one mainline crossing and a spur road crossing tributaries.

Table River

- no data but all major sportfish species probably inhabit river.
- good gravel available for spawning.

Tony Creek (Fig. 18)

- important spawning stream for rainbow trout, mountain whitefish and Arctic grayling.
- Dolly Varden may spawn in stream.
- obstruction to fish passage 3 km upstream of mouth.
- overwintering habitat appeared limited.
- heavy angling pressure at Parsnip Road crossing.
- good trails along creek.

Tony Creek tributary

- small stream with mountain whitefish rearing habitat.
- access limited to crossing of Parsnip Road (no trails).
- light angling pressure.

Tutu Creek (Fig. 19)

- utilized by spawning rainbow trout, mountain whitefish and Arctic grayling.
- abundant good spawning habitat in Reaches 2, 3 and 4.
- Dolly Varden and lake whitefish probably do not spawn in stream.
- longnose suckers possibly spawn in creek.
- moderate amount of fry rearing habitat while overwintering habitat is limited due to low water levels.

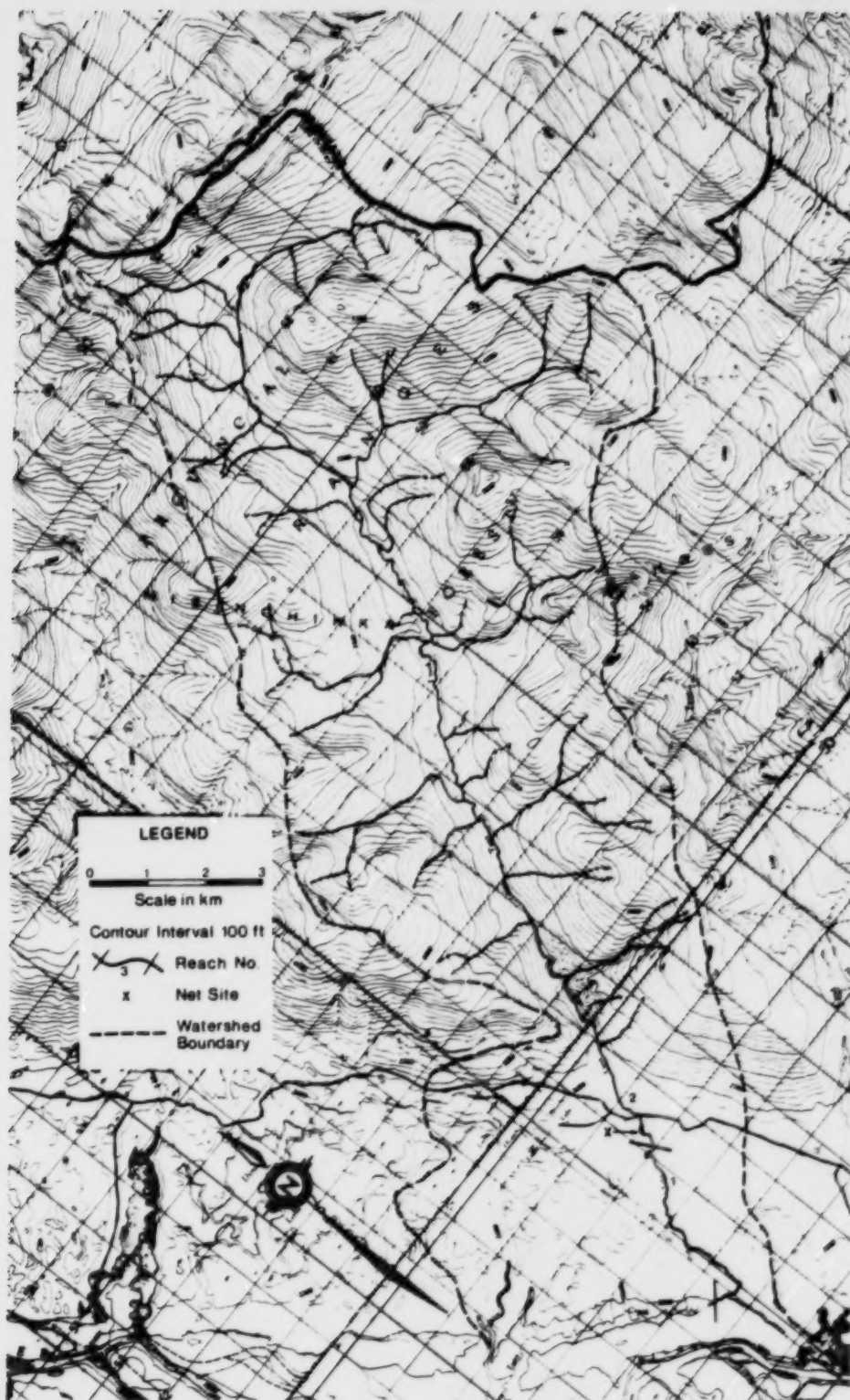


Figure 18 TONY CREEK WATERSHED SHOWING SURVEYED REACHES AND GILLNET SITES

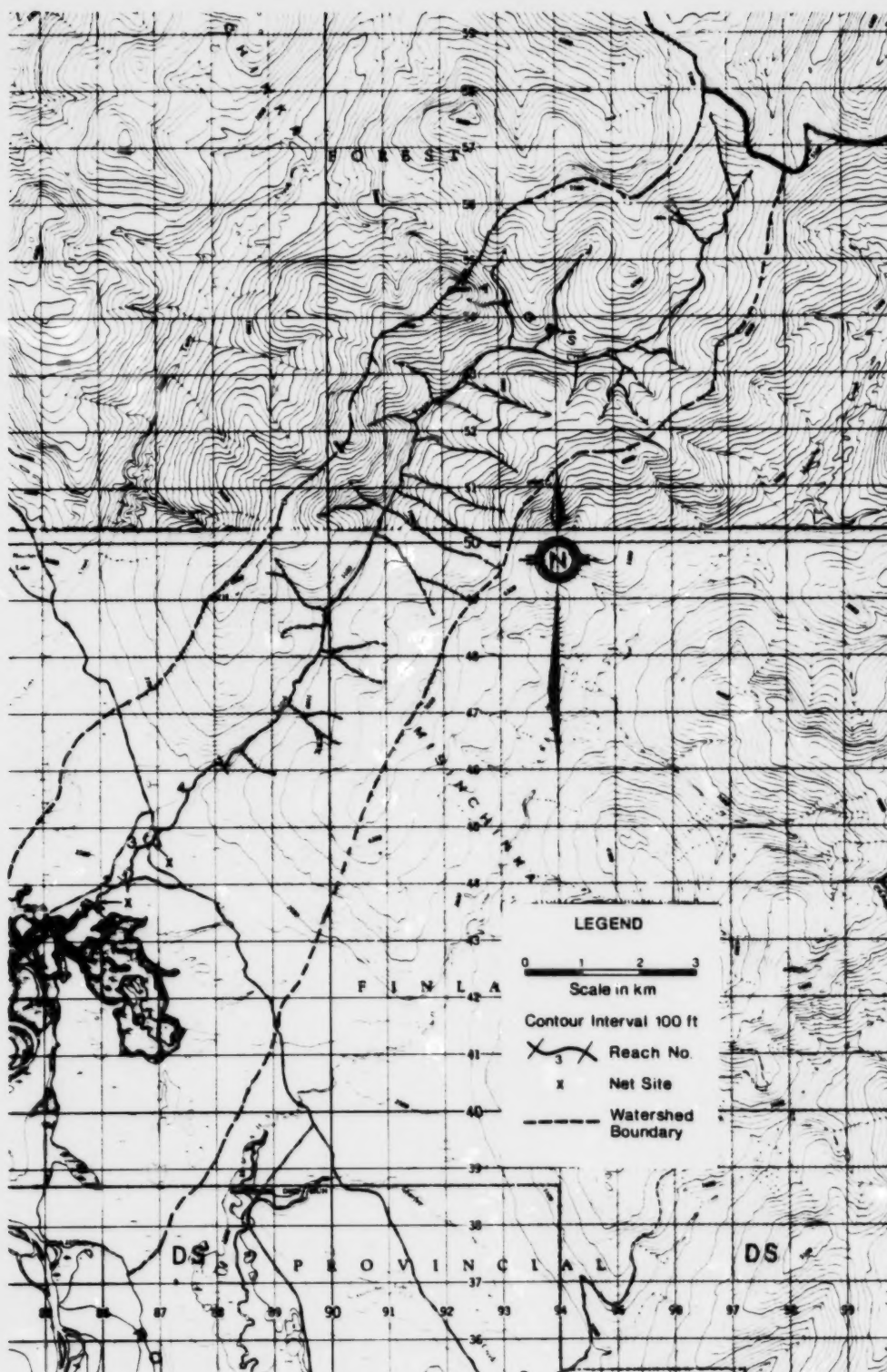


Figure 19 TUTU CREEK WATERSHED SHOWING SURVEYED REACHES AND GILLNET SITES

Tutu Creek (continued)

- access to lower reaches is good (road parallels creek).
- fishing pressure heavy at creek mouth but no upstream trails indicating heavy or repeated use.

Unnamed Creek "B" (Fig. 19)

- no spawning habitat or adult fish observed although some limited overwintering habitat is available.
- rainbow trout and Dolly Varden fry collected so possibly some rearing and limited spawning.

Unnamed Creek "C" (Fig. 20)

- small, insignificant stream with evidence of rainbow trout spawning.
- large rainbow trout paired in stream.
- rearing and overwintering habitat nonexistent since stream dries up most years.
- Nation mainline crosses creek 2 km from mouth.
- no fishing pressure.

Weston Creek (Fig. 21)

- heavily utilized by all spring spawners.
- Arctic grayling eggs found in Reaches 3 and 4.
- ripe and spent Arctic grayling and rainbow trout collected throughout stream.
- abundant spawning habitat.
- no fry observed although moderate amount of rearing habitat.
- overwintering habitat limited.
- excellent to lower reaches.
- logging road parallels creek.
- stream receives heavy spring angling pressure.

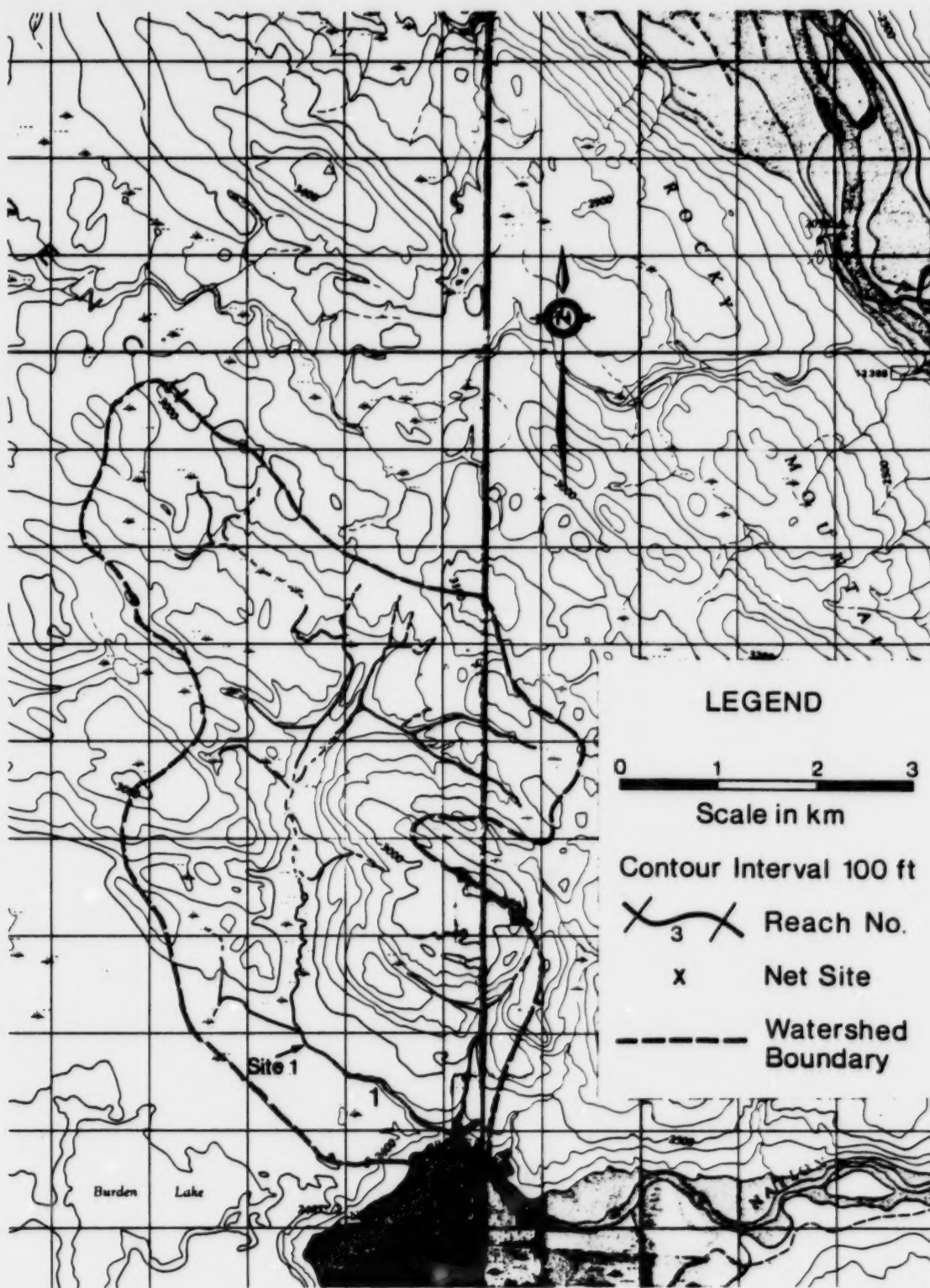


Figure 20 UNNAMED CREEK "C" WATERSHED SHOWING SURVEYED REACH AND SITE

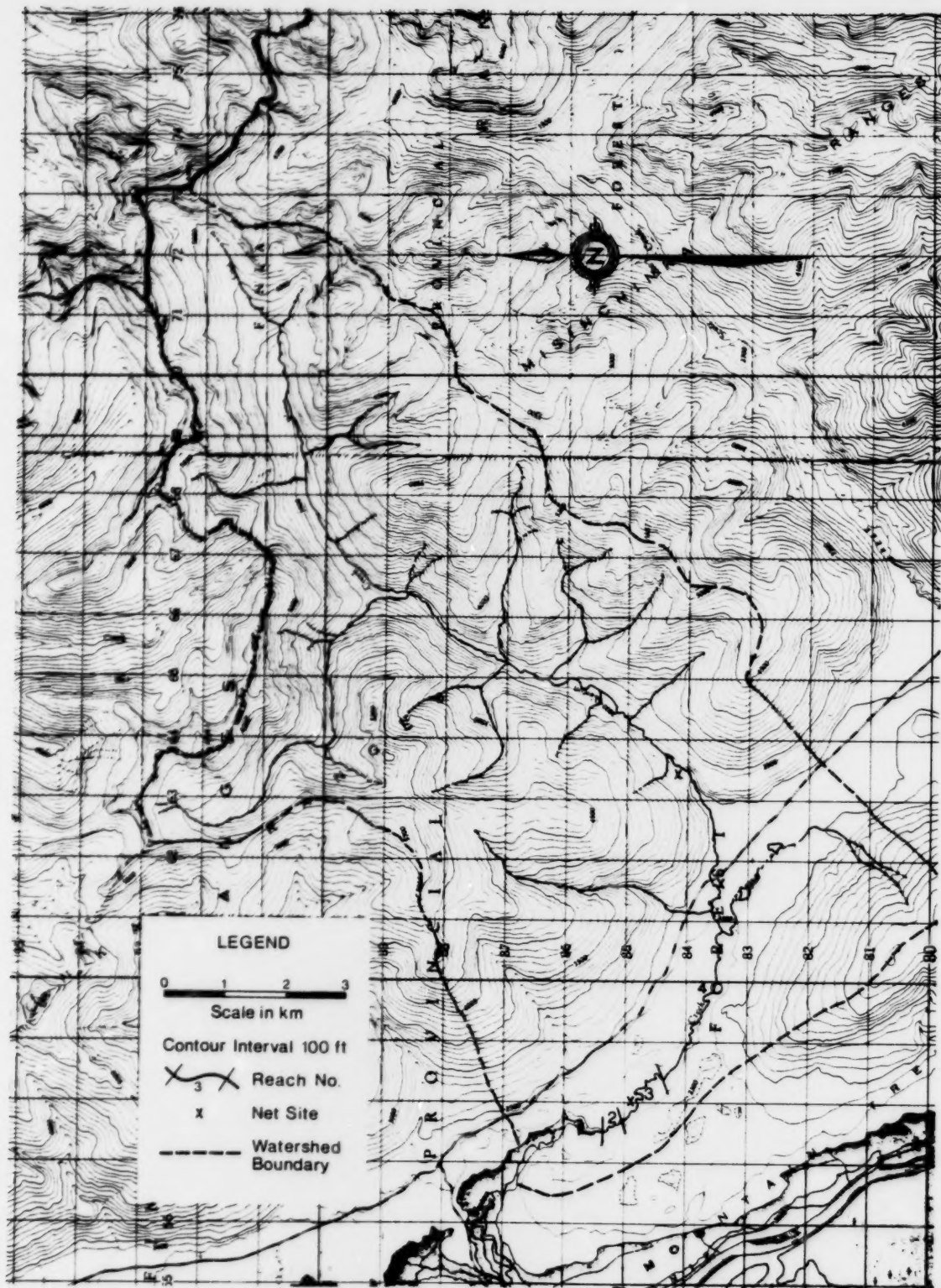


Figure 21 WESTON CREEK WATERSHED SHOWING SURVEYED REACHES AND GILLNET AND SURVEY SITES

Summary of Parsnip Reach Basin

The Parsnip Reach Basin has less flooded bottomland than the Finlay Reach Basin but more than the Peace Reach Basin. Streams on the basin's east side have lost large amounts of highly productive spawning, rearing and overwintering habitat. The larger rivers, e.g. Parsnip, Pack, Nation, Manson and Omineca, are in general much less affected by the different aspects of impoundment than the smaller streams.

Stream gradient profiles for Cut Thumb and Weston Creeks (Fig. 22) are representative of tributaries on the east side of the basin. All the streams on the east side follow a similar pattern of low (2%) slope near the mouth with a steep drop of 4 to 7% where it emerges from the mountains. Often this drop serves as a barrier to fish access.

All streams on the east side are heavily utilized by rainbow trout and Arctic grayling. Adults, especially rainbow trout, move back into the lake soon after spawning. Arctic grayling remain in the tributaries through the summer, although their numbers appear lower than in the spawning season. Mountain whitefish are also present throughout the summer and school upstream in the fall for spawning. Longnose suckers, squawfish and other coarse fish species also spawn in these streams.

Streams on the west side of the basin are not as steep as those on the east (1 compared to 2%). This is due to the extensive bench land on the west side immediately above F.S.L. There are no sections of steep sloped stream (4 to 7%) as on the east side. Instead, headwater areas are initially very steep (10-15%) but are followed by long runs of stream of relatively low slope (1 to 2%).

An apparent increased productivity of streams on the west side may be the result of these long sections of low gradient stream. Strandberg and Blackwater creeks, for example, have populations of resident fish which probably overwinter there. Both rainbow trout and Arctic grayling utilize the west side streams extensively. Longnose suckers spawn in Strandberg Creek and

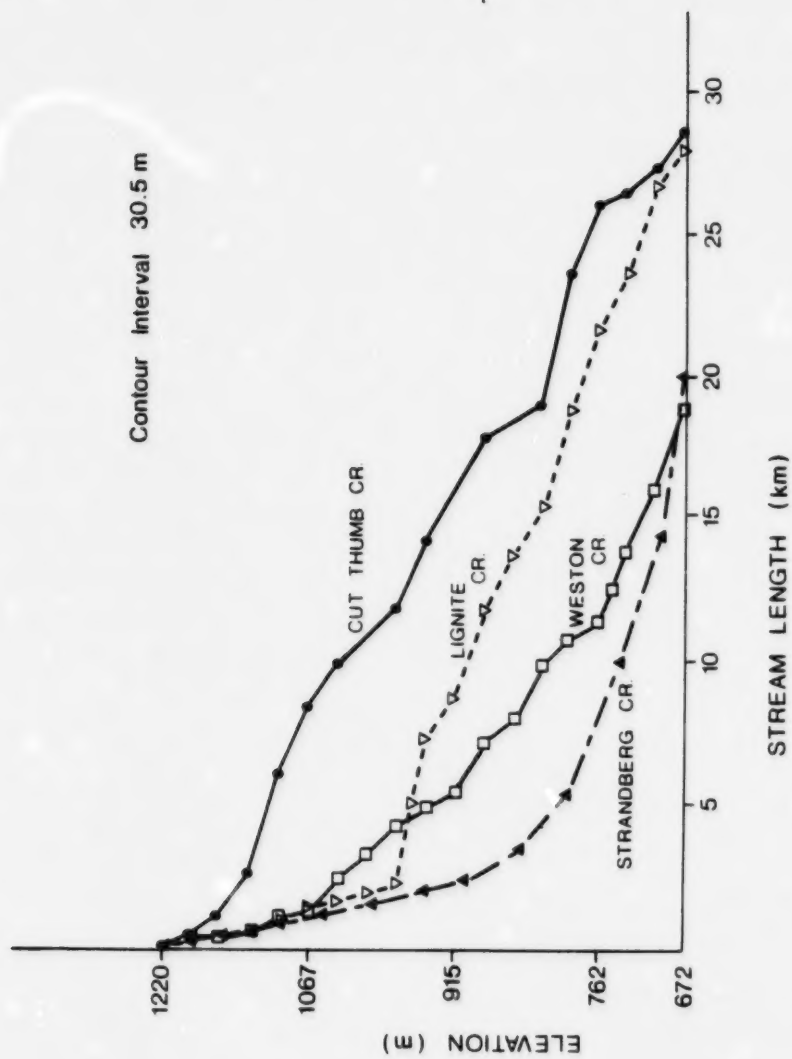


Figure 22 WESTON, CUT THUMB, LIGNITE AND STRANDBERG CREEK STREAM GRADIENT PROFILES

probably other creeks as well. Mountain whitefish were not as common as in the east side tributaries but are present and utilize most creeks for spawning. Dolly Varden are present in Strandberg and Blackwater creeks and may spawn in these streams.

Creeks south of the Nation Arm may be exclusively inhabited by small rainbow trout. Streams in this area did not seem large enough to support big fish, e.g. only small adult and juvenile rainbow trout were collected in Lignite Creek. No other fish were seen or captured in these streams however; other species, e.g. mountain whitefish, may be present.

Fry rearing habitat in the west side streams is more abundant. Downstream migration of fry probably still occurs, although there is little evidence for this supposition since these streams were not inspected in the late summer and fall. An exception was Lignite Creek where fry were captured in a fyke net.

All the larger rivers have very low slopes, usually less than 1%, for extended distances. No major obstacles to fish movement were encountered with the exception of the Nation River where various sets of rapids could be barriers. Fish undoubtedly reside above these rapids; however, it is not known whether Williston Lake fish are able to move past these areas. The gradient and velocity characteristics suggest that larger fish can migrate past these obstacles.

All major rivers, i.e. Parsnip, Pack, Nation, Manson and Omineca, have excellent habitat for all age classes of all species. Overwintering habitat was abundant at almost every site surveyed, and spawning and fry rearing habitat was observed in almost every reach. With the exception of lake whitefish, all game species, i.e. Arctic grayling, rainbow trout, mountain whitefish and Dolly Varden, were captured in all these large rivers and are probably resident there. Squawfish and longnose sucker were the most common non-game fish captured. The only resident population of lake whitefish positively identified occurred in the Pack River system. It is unknown whether other resident populations of lake whitefish occur in other systems.

The total length of stream available to fish in the Parsnip basin was 1282 km with a total potential spawning length of 507 km. The available spawning habitat probably far exceeds the requirements of resident and migrant populations except possibly for lake whitefish. For lake whitefish, it was possible to distinguish the larger, heavier reservoir fish from the smaller, slender resident fish. The exact nature of the preferred spawning habitat as well as the magnitude of the spawning run are unknown; however, a large number of fish are involved that appear to prefer relatively deep (at least 1 m) runs with coarse bed material. The Parsnip River has the largest known run. Other major rivers are probably suitable for lake whitefish spawning although there is only evidence for the Pack (schooling of fish in the lower reaches) and Manson (capture of lake whitefish fry). It is unlikely lake whitefish spawn in any small streams on either side of the basin.

Most fry which emerge in larger rivers probably remain in these rivers to maturity. There is no evidence of fry migrating downstream to the reservoir.

Numerous proposed developments have the potential to disrupt the fisheries in this basin. Extensive logging is occurring on the bench land between the Nation and Omineca Arms. The south side of the Nation River near its mouth will be logged. Much of the Pack and, especially, the Parsnip River watersheds are being logged. Logging on the east side of the basin has tapered off but is still extensive in the Weston Creek drainage. The only anticipated mining development is of the Sukunka coal deposits. Any disruptions will probably result from road construction. The most disruptive development proposed for this basin is the MacGregor River diversion. This project would essentially turn the Parsnip River into a sluice-way for additional water for the reservoir. The general effect of increasing the peak flows from 50 to 100% would be to straighten out the river, flood low-lying bottomland and cause the bed material to become even coarser making the river less suitable for fish populations. It is difficult to judge what effect such alterations would have on adult resident and juvenile rearing habitat; however, it would likely be greatly reduced or perhaps even eliminated. This would be particularly important to lake whitefish because the Parsnip River has the only

known major spawning run. It is clear the MacGregor diversion would have drastic effects on fish populations, possibly eliminating some species or age classes.

Fishing pressure on Parsnip Reach Basin tributaries is probably the highest for the entire lake primarily because of easy access. It is difficult to assess the impacts of angling on resident fish populations since almost all streams are relatively accessible and consequently are fished. However, if compared with streams in the other reach basins that are more isolated, it appears angling in the Parsnip Reach Basin keeps fish population depressed. Non-compliance by local anglers with catch limits and stream closures during spawning periods is probably the most important reason for the low population level. It is necessary to enforce existing closures on all streams during the fishing season. Arctic grayling and rainbow trout are the most sensitive species in this basin with the fall spawners being relatively less sensitive to angling pressure. Large Dolly Varden, schooling at tributary creek mouths are, however, particularly vulnerable to over-exploitation.

Streams of the Finlay Reach Basin (Fig. 23)

Chowika Creek (Fig. 24)

- spawning Arctic grayling and Dolly Varden observed in Reach 1.
- mountain whitefish fry and rainbow trout observed in Reach 4.
- overwintering habitat limited in upper reaches but abundant in lower reaches.
- boat access to mouth with trail short distance upstream.

Chunamon Creek (Fig. 23)

- slow, meandering stream with limited spawning potential.
- no fish observed.
- fishing pressure unknown but probably negligible.
- boat access to mouth.

Collins Creek (Fig. 25)

- spent and developing Arctic grayling collected.
- mature Dolly Varden collected.
- large number of ripe longnose suckers.
- important for spawning Dolly Varden.
- fishing pressure negligible.
- poor access by boat and no trail up creek.
- no evidence of fishing camps.

Davis River (Fig. 26)

- many Arctic grayling observed in Reach 1.
- mature Dolly Varden abundant in Reach 1.
- immature and mature longnose sucker and mountain whitefish collected.
- Reach 2 probably utilized by Arctic grayling and Dolly Varden.
- Arctic grayling and Dolly Varden probably spawn in Reach 3.
- no fry observed but overwintering habitat available.
- access by jet boat only.



Figure 23 FINLAY REACH BASIN TRIBUTARIES SURVEYED IN 1975



Figure 24 CHOWIKA CREEK WATERSHED SHOWING SURVEYED REACHES AND GILLNET SITES

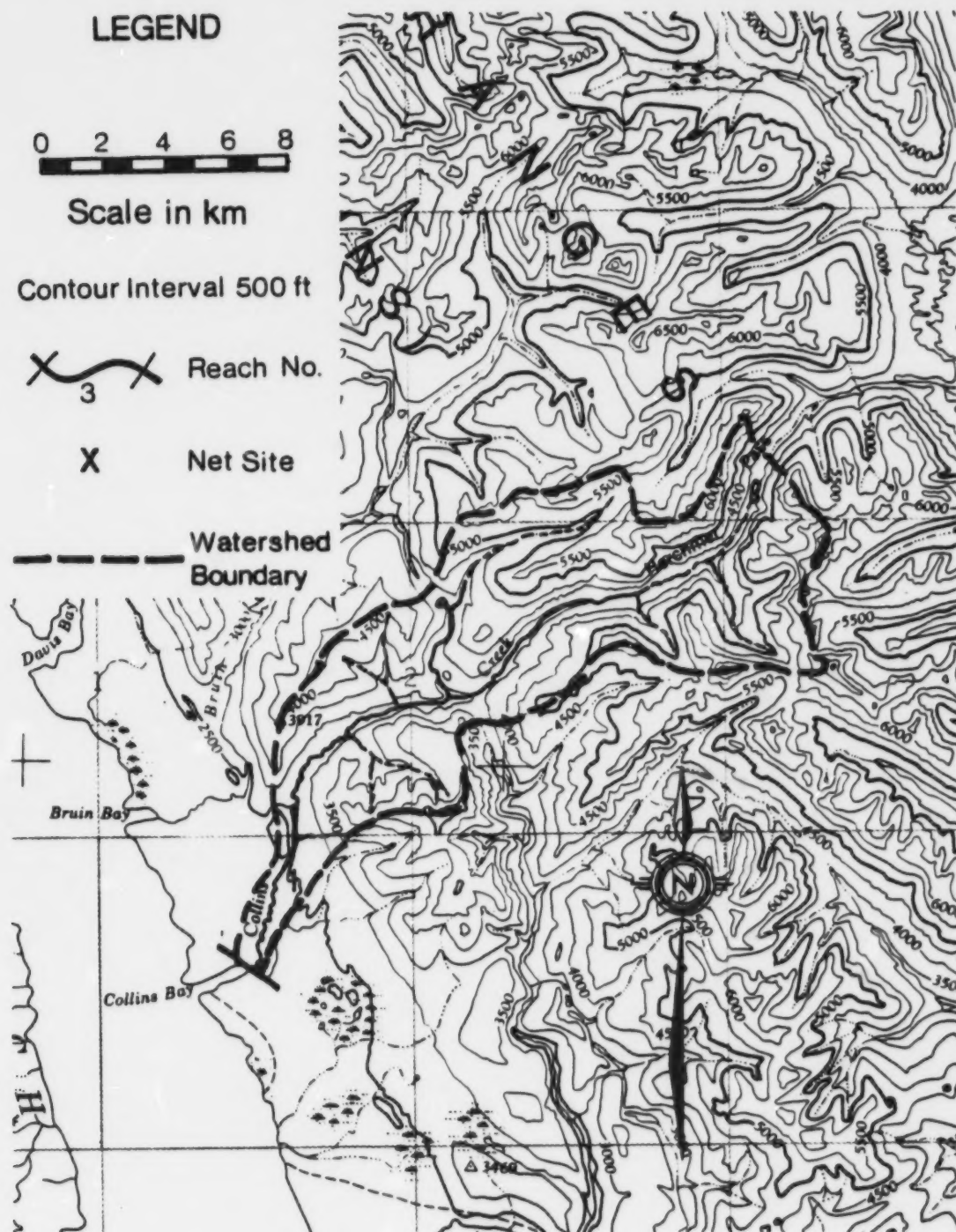


Figure 25 COLLINS CREEK WATERSHED SHOWING SURVEYED REACH



Figure 26 DAVIS CREEK WATERSHED SHOWING SURVEYED REACHES AND GILLNET SITES

Factor Ross Creek (Fig. 27)

- no fish observed or captured.
- probably freezes to streambed in winter.
- fishing restricted to mouth.

Finlay River

- no fry observed but spent Dolly Varden collected indicating spawning activity in mainstem river.
- local reports of mountain whitefish, Arctic grayling and Dolly Varden and rainbow trout.
- fishing is light and mainly limited to area near Fort Ware.

Ingenika River Fig. 28)

- developing Arctic grayling and Dolly Varden, and mature lake and mountain whitefish collected.
- Arctic grayling observed in Wrede Creek.
- no fry observed although rearing habitat available.
- probably the most highly utilized river in Finlay Reach Basin.
- good trails along river.

Ivor Creek (Fig. 29)

- no fish observed or captured.
- suitable spawning habitat for rainbow trout.
- several cabins near mouth.
- trail up creek.

Lafferty Creek (Fig. 30)

- spent Arctic grayling, and immature Dolly Varden and rainbow trout collected.
- ripe and spent longnose and largescale suckers collected.
- Dolly Varden, mountain whitefish and rainbow trout probably spawn in Reach 4.
- overwintering habitat limited.

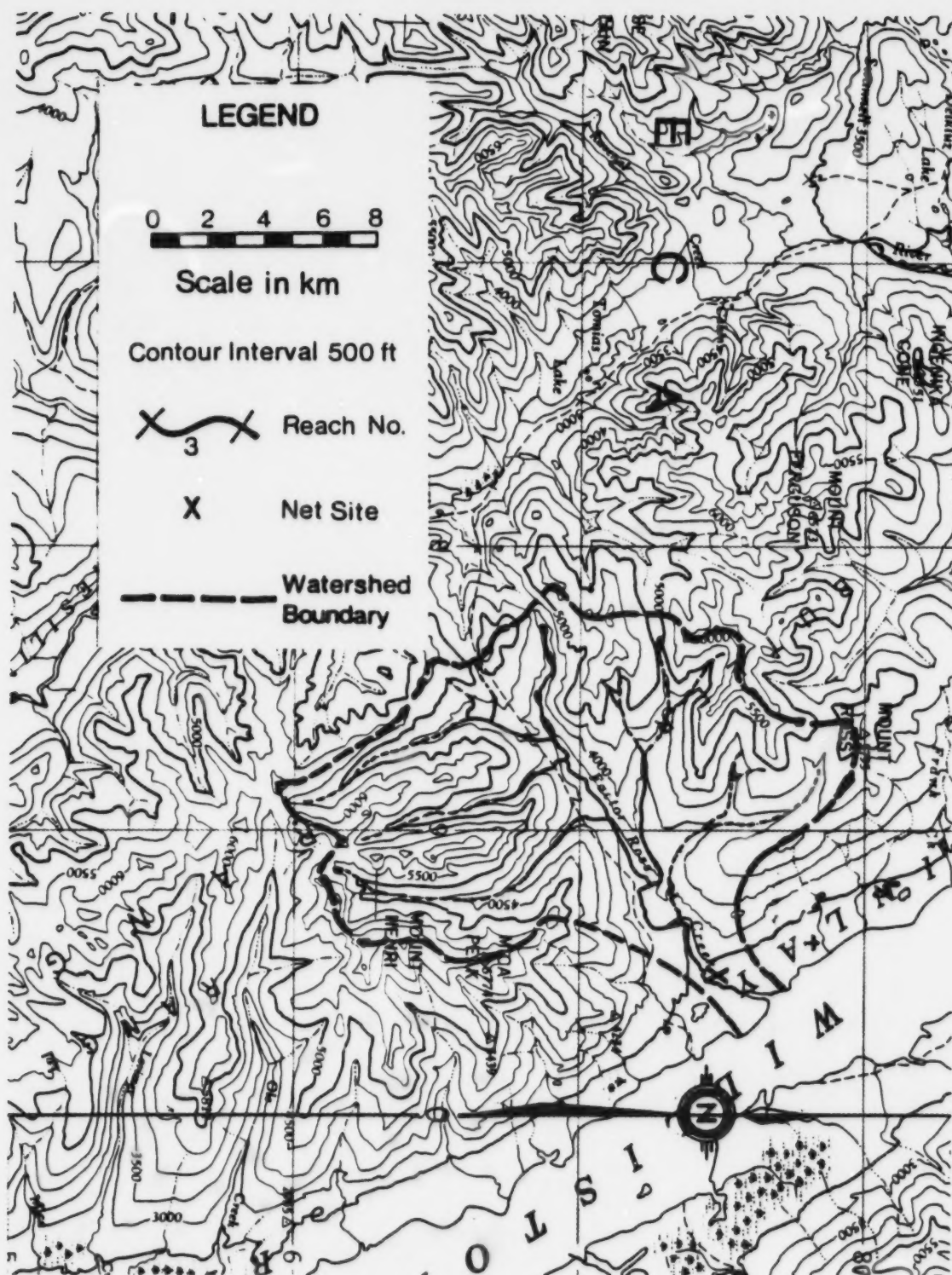


Figure 27 FACTOR ROSS CREEK WATERSHED SHOWING SURVEYED REACH AND GILLNET SITE



Figure 28 INGENIKA RIVER WATERSHED SHOWING SURVEYED REACH AND GILLNET AND SURVEY SITES

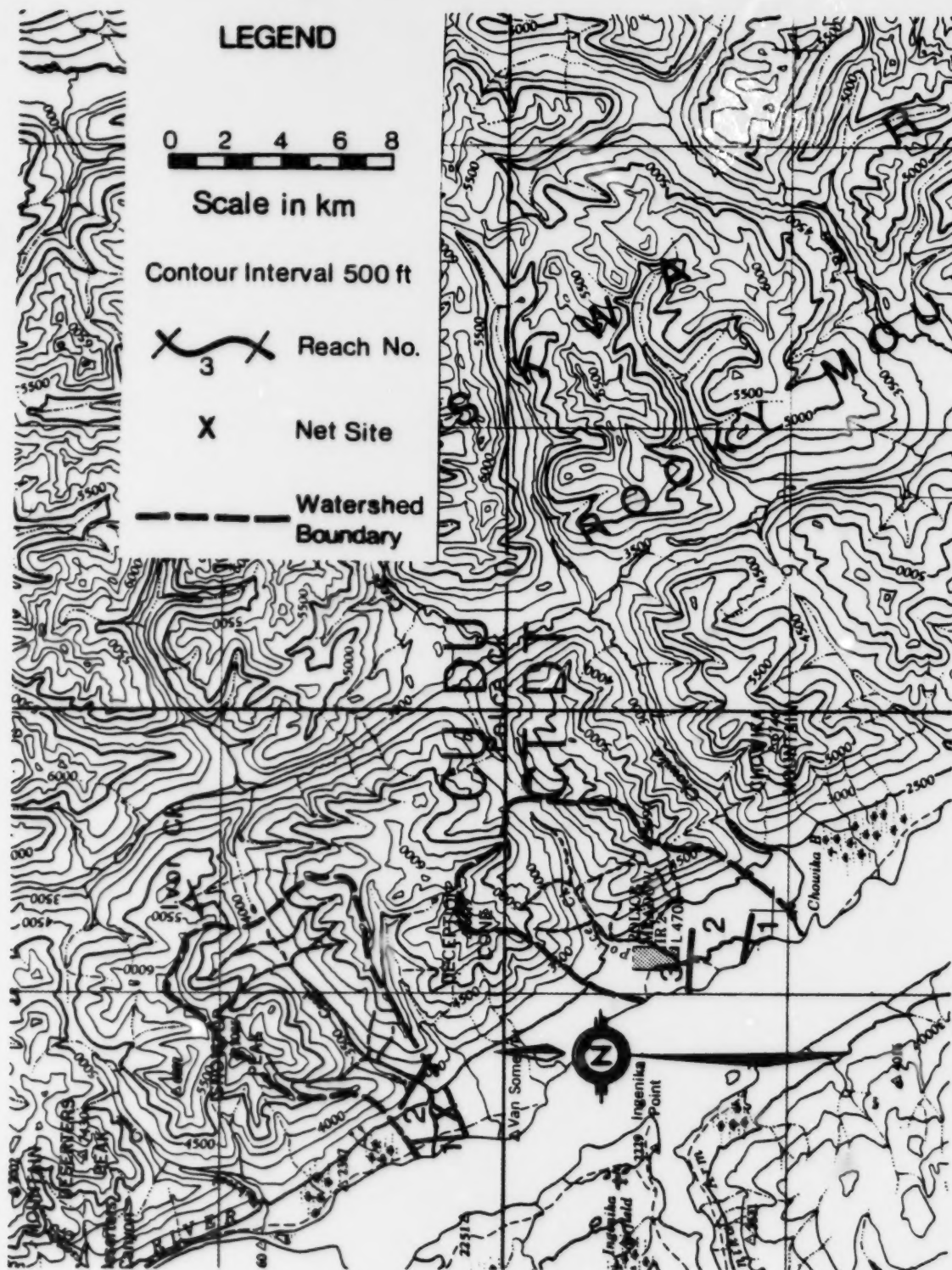


Figure 29 POLICE AND IVOR CREEK WATERSHEDS SHOWING SURVEYED REACHES AND GILLNET SITES

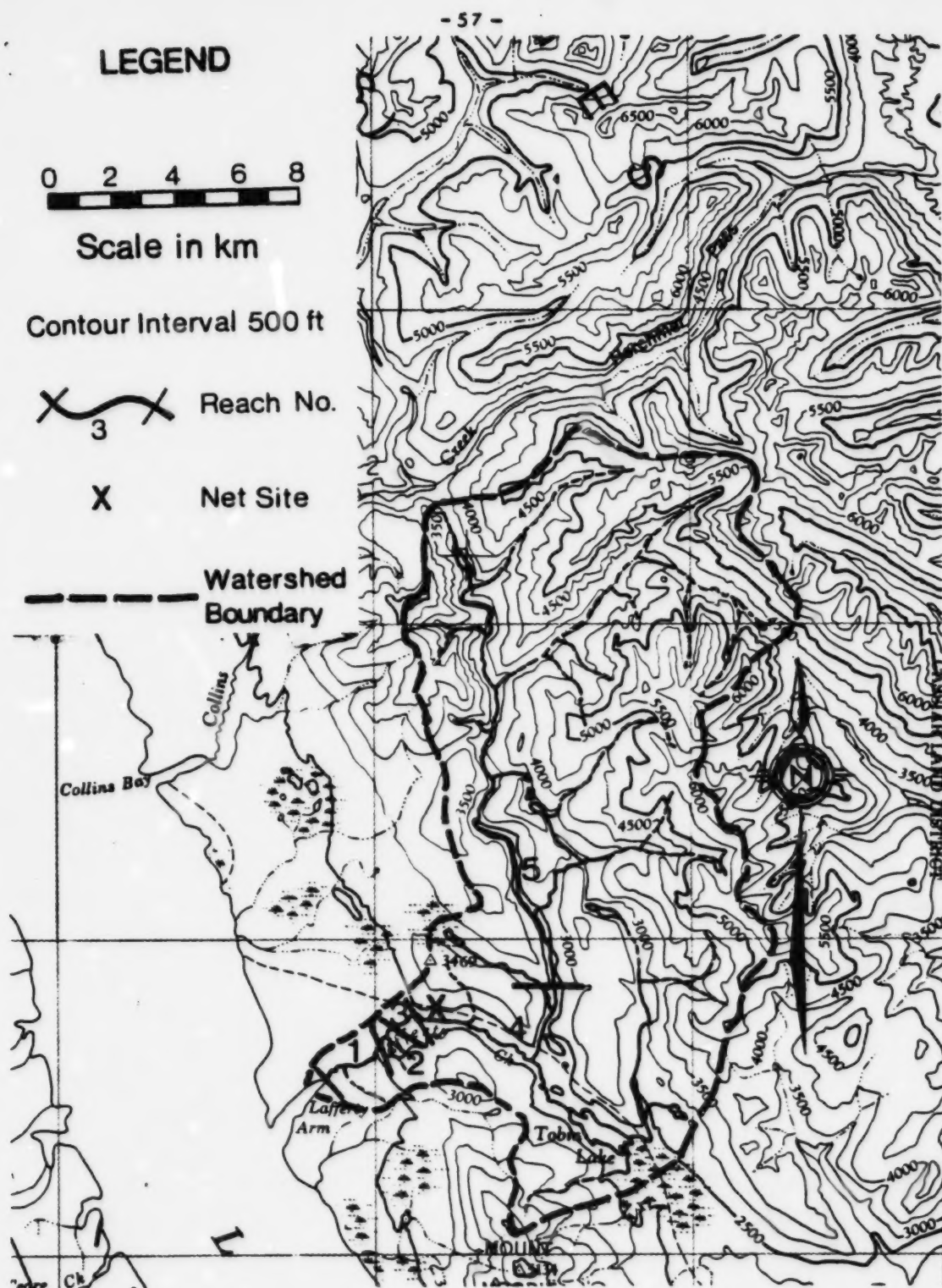


Figure 30 LAFFERTY CREEK WATERSHED SHOWING SURVEYED REACHES AND GILLNET SITES

Lafferty Creek (continued)

- high utilization by all species.
- access to creek mouth difficult however, there is trail along the creek.
- light fishing pressure.

Mesilinka River (Fig. 31)

- suitable habitat but no fish collected in Reach 1.
- Arctic grayling and rainbow trout collected in Reach 2.
- no fry observed.
- utilization of fishery limited.

Ospika River (Fig. 32)

- Dolly Varden, mountain whitefish and Arctic grayling probably spawn in Reach 1.
- Dolly Varden and mountain whitefish probably spawn in Reach 2.
- high spawning and rearing potential.
- good overwintering habitat.
- mouth of river only lightly fished.
- access to mouth difficult due to debris.

Police Creek (Fig. 29)

- no fish collected (one unidentified fish observed).
- appears unproductive with little spawning habitat.
- trail to creek mouth although bay is choked with debris.
- little or no fishing pressure.

Teare Creek (Fig. 33)

- very small stream with mud substrate.
- no fish observed.
- fishing pressure unknown but probably negligible.
- boat access to mouth.

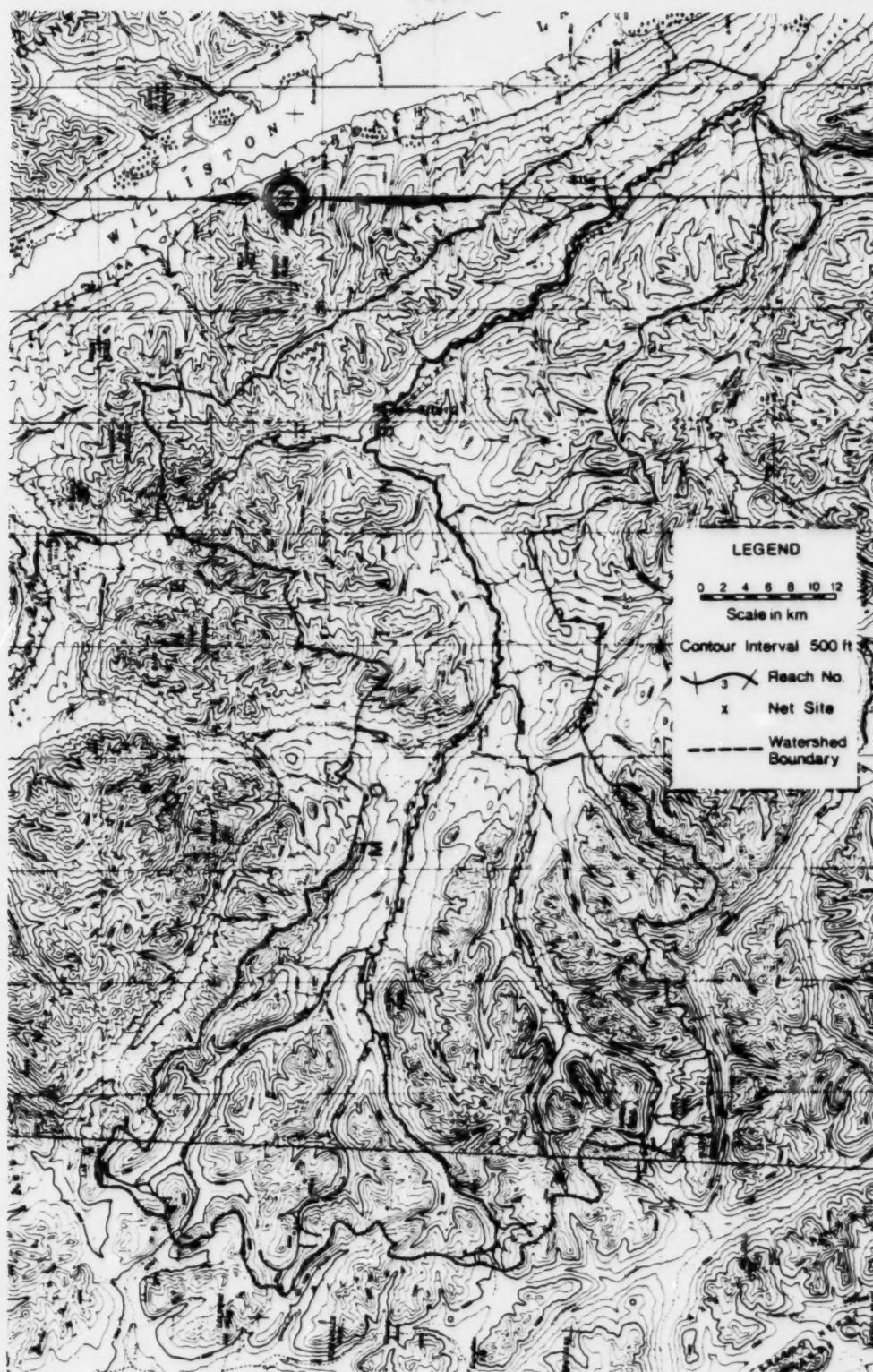


Figure 31 MESILINKA RIVER SHOWING SURVEY AND GILLNET SITES

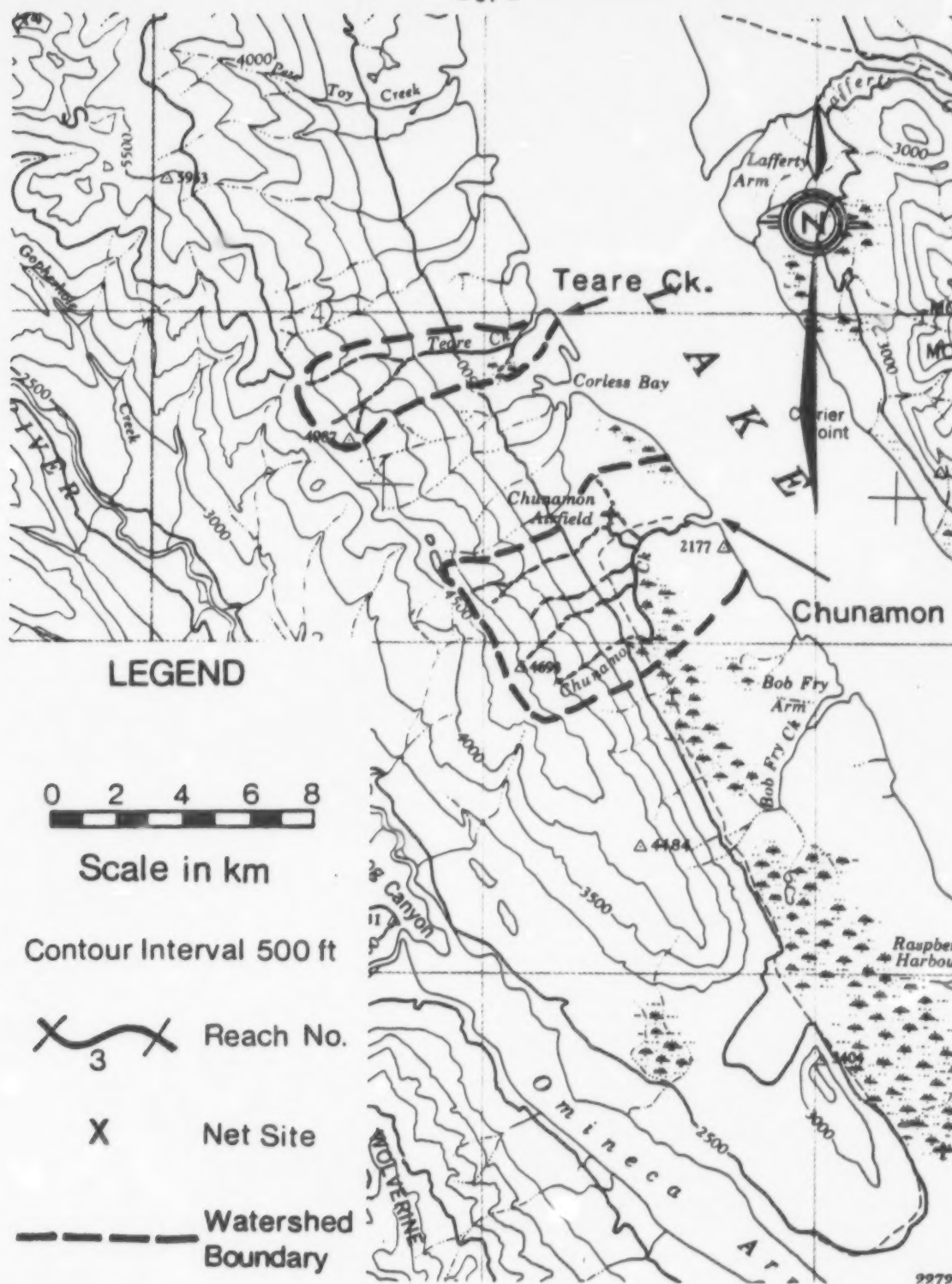


Figure 33 TEARE AND CHUNAMON CREEK WATERSHEDS SHOWING SURVEYED REACHES

Summary of The Finlay Reach Basin

The primary effect of impoundment on Finlay Reach Basin tributaries has been flooding of low gradient reaches that formerly crossed the floor of the Rocky Mountain trench and drained into the Finlay River. Streams north of Lafferty Creek on the east side of the basin now typically have a steep gradient in the lower reaches. Most streams now pass through a canyon in their lower reaches. Dolly Varden were found in the lower section of the Chowika River where they probably spawn. No Dolly Varden were caught in low gradient reaches upstream indicating an apparent preference for steep gradient areas even though ample spawning habitat existed in both gradient areas and upstream passage appeared possible. Fig. 34 is representative of streams in this area. Where low gradient sections occur in lower reaches of rivers, spawning runs of suckers were observed. Arctic grayling were numerous in these rivers and probably spawn and rear in them. Mountain whitefish and rainbow trout also utilize these streams and were found in both upper and low gradient reaches.

Lafferty Creek is an exception to this general stream gradient pattern on the east side. It has a gradient of 1% for 16 km upstream from the lake, then steepens to a 2% slope for 8.5 km upstream before reaching the very steep headwater area (Fig. 34). This creek was found to be exceptionally productive, in terms of suitable spawning and rearing habitat, and contained a wide variety of fish species. The presently flooded areas of the more northern streams may have been similarly productive prior to impoundment and supported a greater diversity of fish species than presently exists.

The Ospika is the largest river on the east side and was the most turbid surveyed. Arctic grayling, Dolly Varden and mountain whitefish were collected. The river appeared to have good potential for spawning and rearing. Observations were difficult due to turbidity levels which may have resulted from the suspension of sediment.

On the west side of the basin only the Mesilinka and Ingenika rivers, which have low gradients (1% or less) for considerable distances, have high spawning and rearing potential. Arctic grayling, mountain whitefish, Dolly Varden and lake whitefish were collected in the Ingenika. The Ingenika was the only river, other than the Pack and Parsnip rivers, where adult lake whitefish were collected suggesting this species spawns in this system.

Smaller streams, from the Omineca Arm to the Ingenika River, generally appeared unproductive with little suitable habitat for spawning and rearing. No fish were observed or collected. Factor Ross is the largest of these streams and descends more steeply to the reservoir than Lafferty Creek, and it therefore lacks the lower gradient areas that exist in Chowika Creek (Fig. 34).

The Finlay River was only briefly examined near the mouth primarily because of its large drainage size and time constraints. Mature Dolly Varden were collected. This species likely ascends the river for a considerable distance. Local information indicates rainbow trout, Arctic grayling and mountain whitefish are common in the system. Undoubtedly, there is substantial spawning and rearing habitat and therefore the Finlay River should be considered to be important to Williston Lake fish stocks.

Fishing pressure in Finlay Reach Basin is concentrated on specific rivers. An Indian village at the mouth of the Ingenika River results in frequent travel up and down the river with fishing for daily needs being common. Indians at Fort Ware do not appear to have a subsistence fishery on the Finlay River; the only fishing is by angling.

Most sport fishing takes place on the east side of the basin and is directed toward large Dolly Varden ascending tributaries one to two months prior to spawning. After spawning these fish return to the lake. Jet boats are the common means of reaching these areas, generally from the launching site at Finlay Forks. The number of jet boats active on the lake has greatly increased in the last few years according to local anglers. Fishing is confined to creek mouths with little effort made to fish upstream. Although

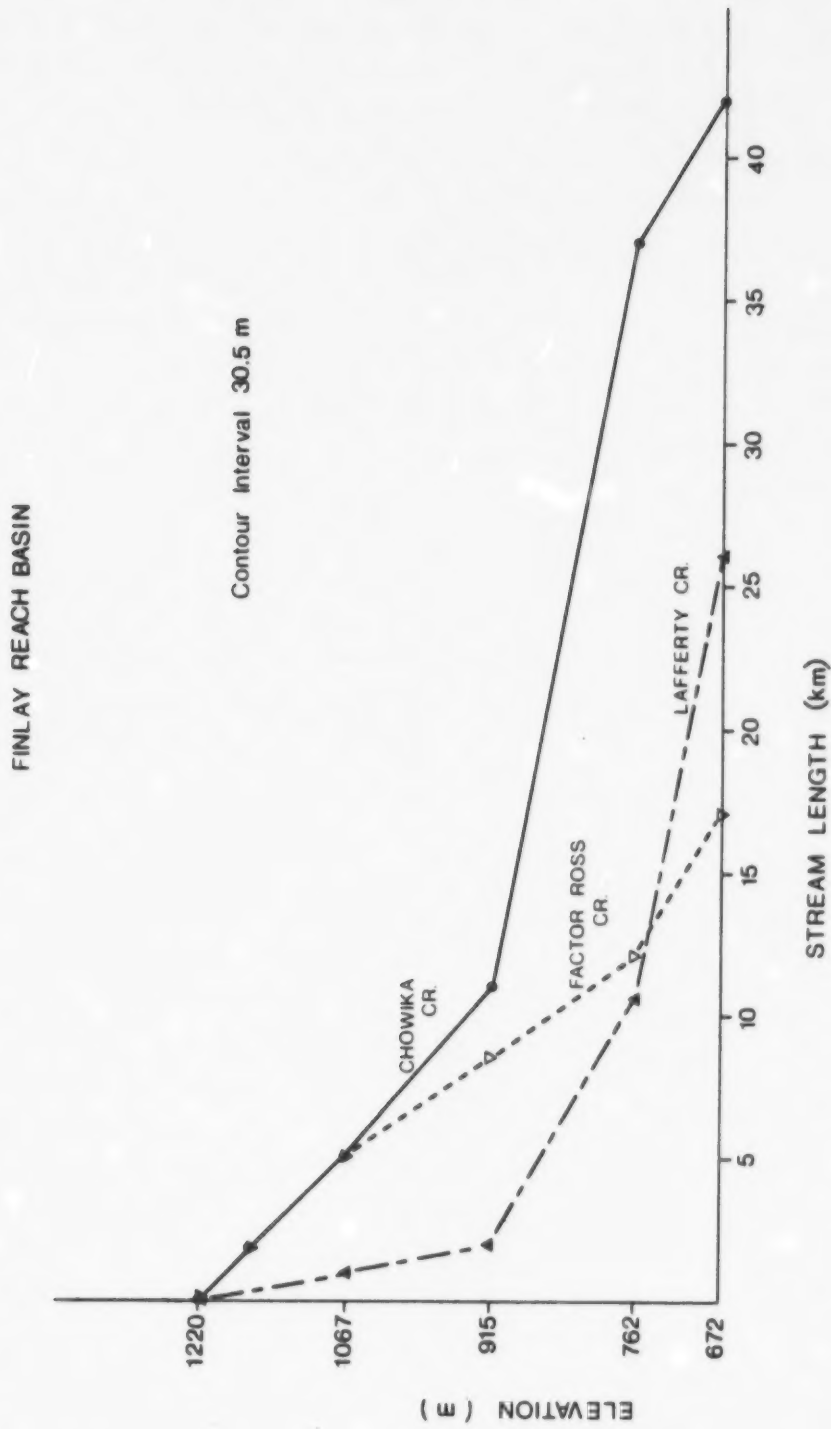


Figure 34 LAFFERTY, CHOWIKA AND FACTOR ROSS CREEK STREAM GRADIENT PROFILES

overall effort is sporadic, fishing pressure is intense during a fishing party's outing. It is very easy to catch mature Dolly Varden during the prespawning period consequently angler success is high. The angling pressure on this species will likely be detrimental and will increase as the popularity of the area and number of sports fishermen with jet boats increases. Many anglers feel immune to closure regulations on creeks in the fall since they are fishing the mouths or the lake proper. Specific waters important to Dolly Varden for spawning areas that may be subject to heavy angling pressure are Chowika, Collins and Lafferty Creeks and Davis River.

The total length of available stream habitat for the Finlay Reach Basin was 642 km with a total potential spawning length of 261 km. The Finlay River, however, was measured only to Long Canyon (100 km), upstream from the lake. It is unknown whether this canyon is an obstacle to fish. In addition, fewer streams were surveyed in the Finlay Reach Basin compared to the Parsnip Reach Basin and thereby this total available length is considered conservative.

Streams of the Peace Reach Basin (Fig. 35)

Adams Creek (Fig. 36)

- no fish seen or collected.
- limited spawning and rearing habitat.
- very low relative importance to fish.
- no sign of angling activity.

Bernard Creek (Fig. 37)

- captured mature Arctic grayling, Dolly Varden and mountain whitefish.
- no fry observed.
- all fish sampled from a large pool at mouth which probably serves as holding and feeding area for all species.
- Arctic grayling may spawn in Reach 1 but probably not in Reach 2 (limited spawning and rearing potential).
- creek is of limited importance to Arctic grayling and mountain whitefish.
- encountered a fishing party of 10 anglers (launched at W.A.C. Bennett Dam) at mouth (18 Arctic grayling).
- no sign of angling activity upstream of mouth.

Carbon Creek (Fig. 38)

- collected Arctic grayling, mountain whitefish, Dolly Varden, rainbow trout, longnose sucker.
- Arctic grayling spawn and rear in Reach 1.
- longnose sucker spawn in Reach 1.
- schools of longnose sucker observed and probably spawn and rear in Reach 2.
- Dolly Varden probably overwinter in Carbon Creek.
- local reports of rainbow trout spawning runs.
- has high spawning potential.
- heavy fishing pressure on lower part of stream during summer and fall.
- observed fishing party of six anglers at mouth.
- mining survey camp located on Carbon Creek Bay.
- good upstream access via trail for 2 km.

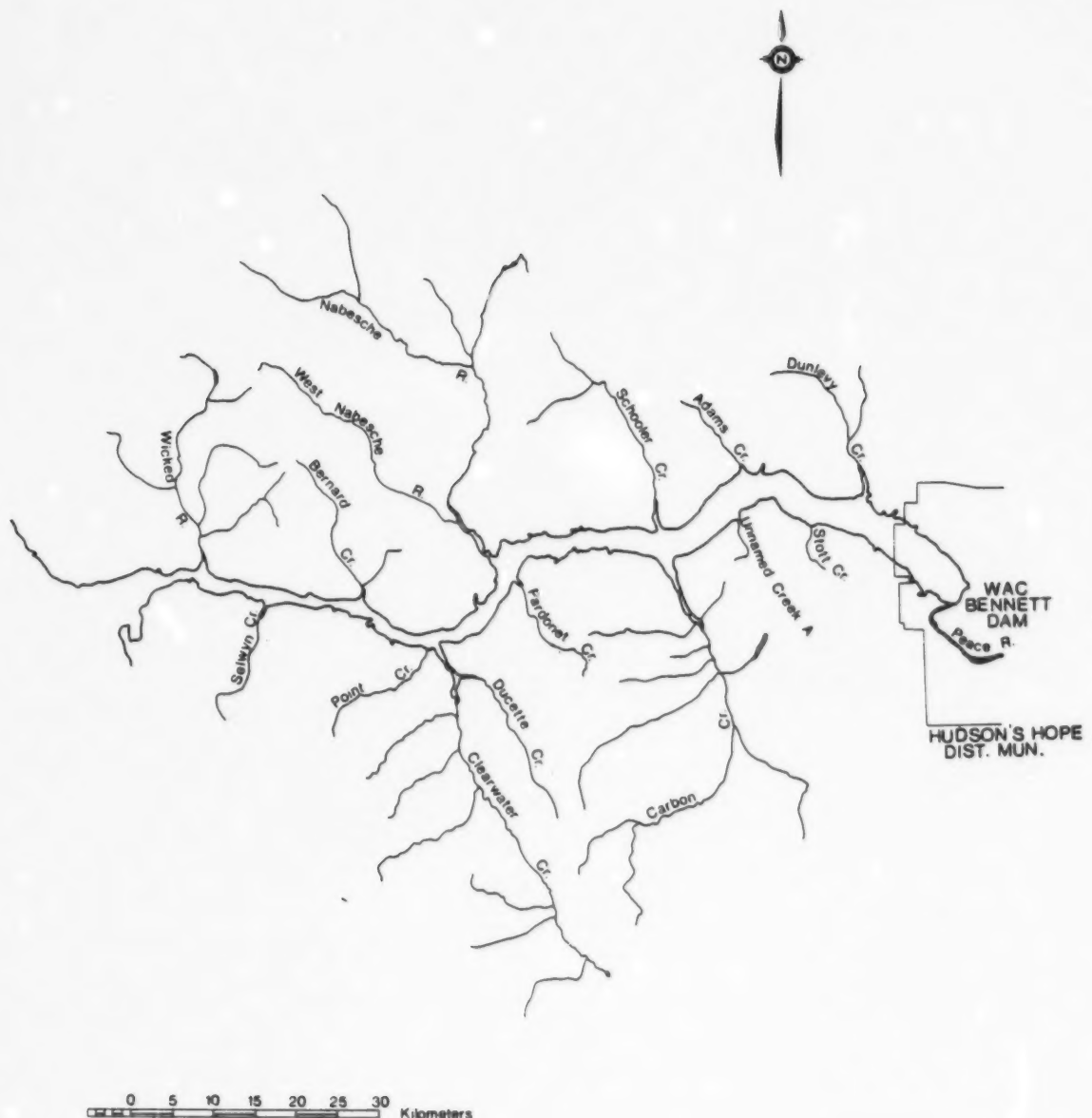


Figure 35 PEACE REACH BASIN TRIBUTARIES SURVEYED IN 1975

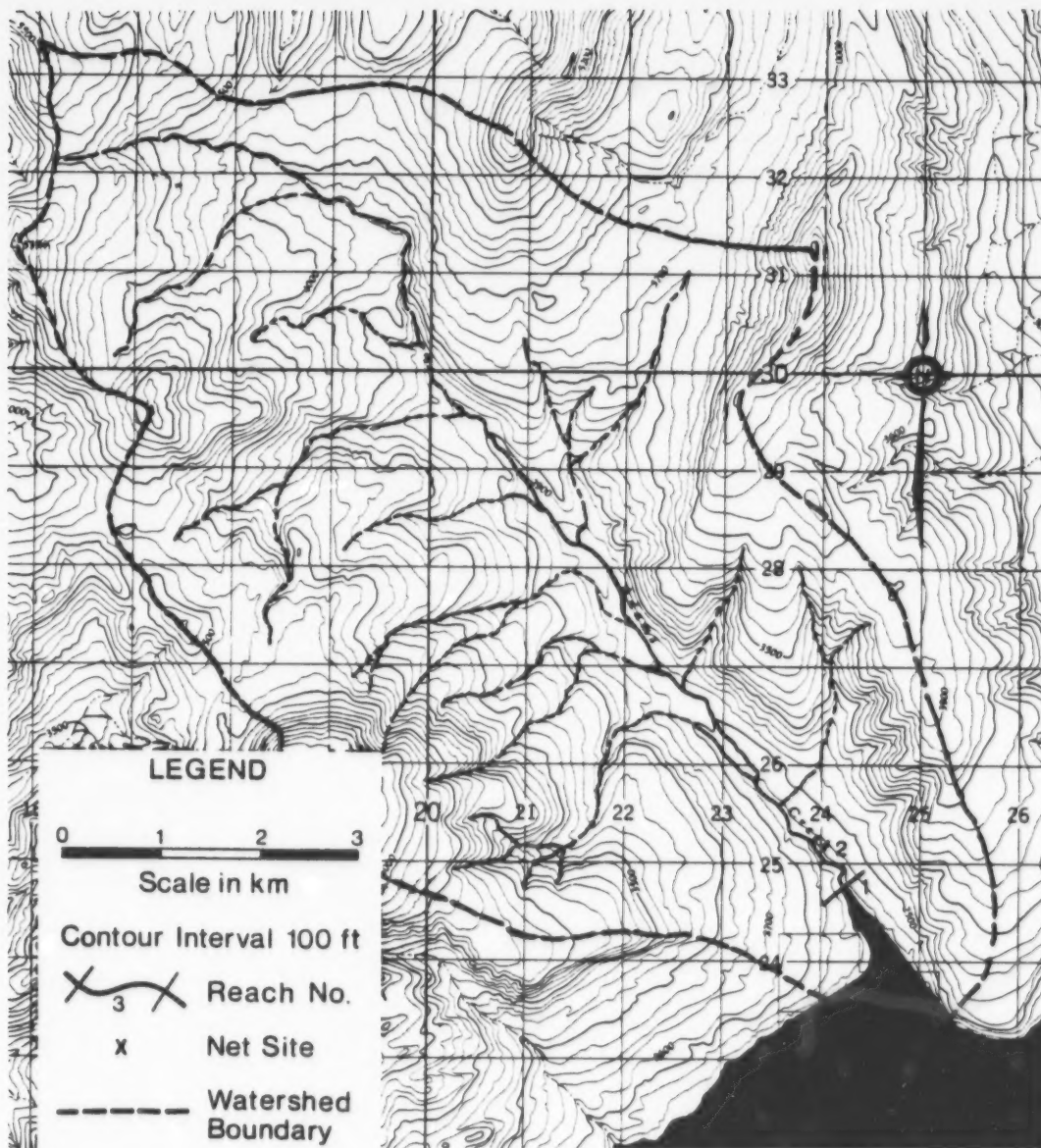


Figure 36 ADAMS CREEK WATERSHED SHOWING SURVEYED REACH

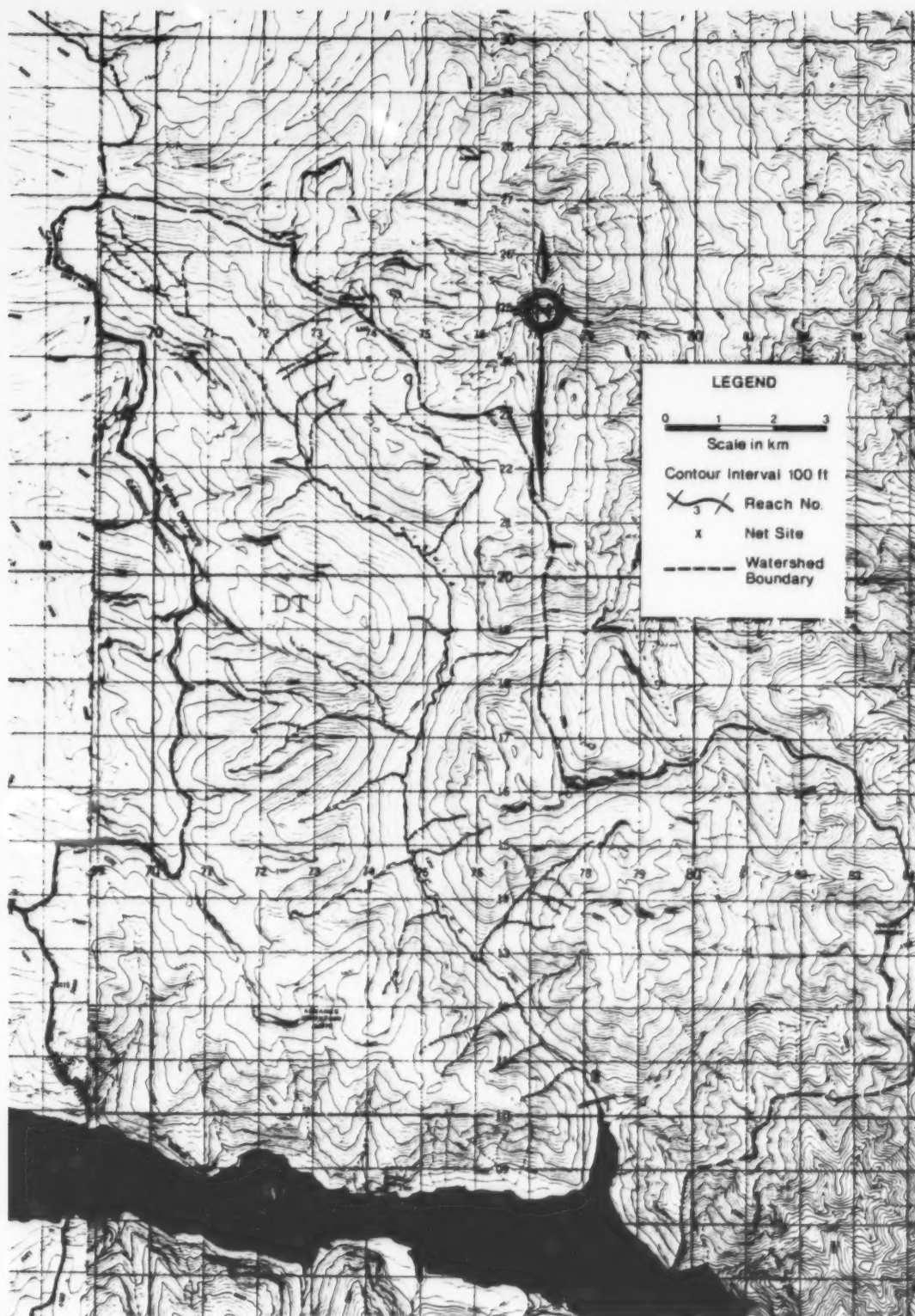


Figure 37 BERNARD CREEK WATERSHED SHOWING SURVEYED REACHES

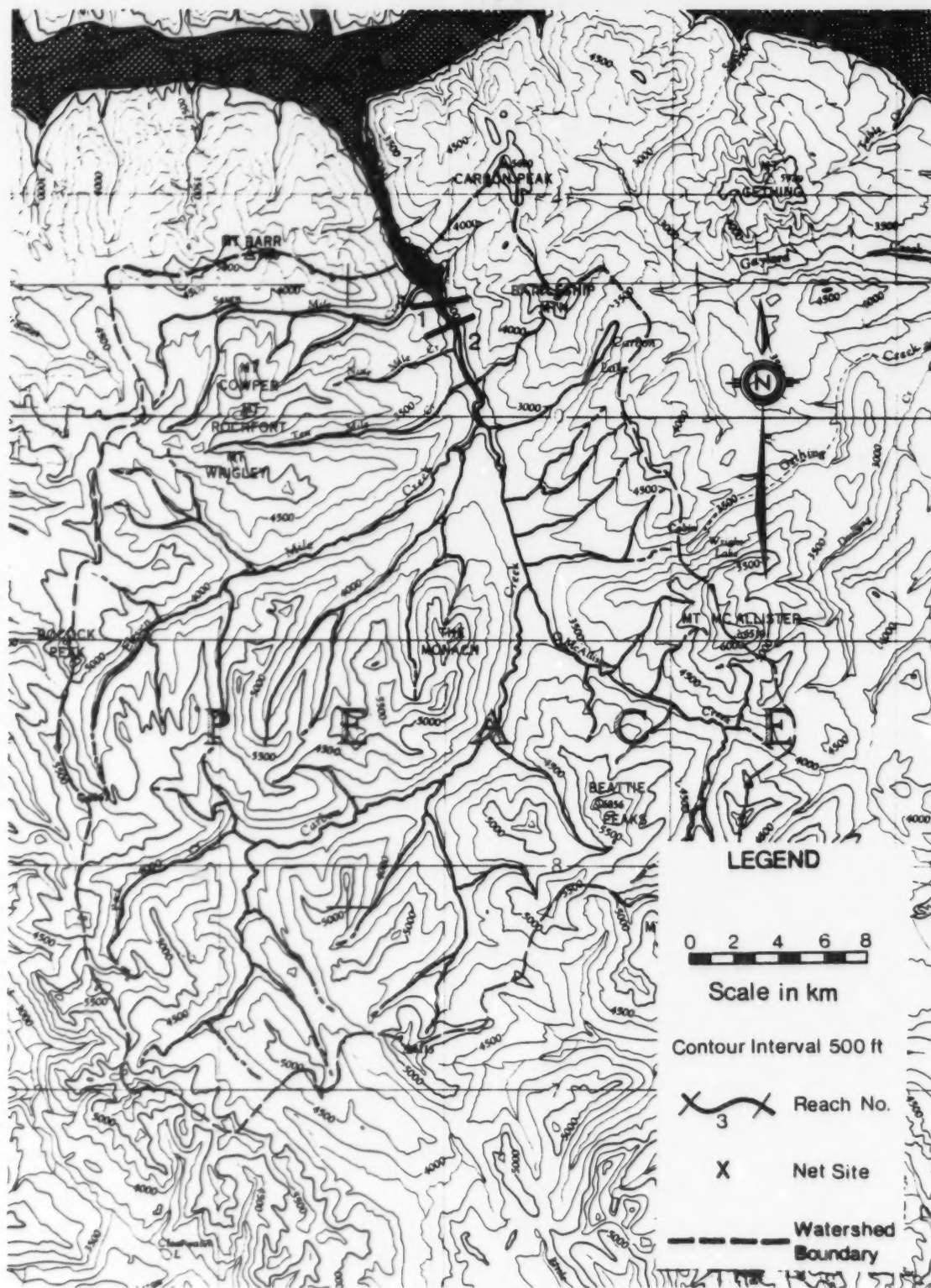


Figure 38 CARBON CREEK WATERSHED SHOWING SURVEYED REACHES

Clearwater Creek (Fig. 39)

- sampled Arctic grayling, Dolly Varden, rainbow trout, mountain whitefish, longnose sucker.
- juvenile and adult Arctic grayling abundant in Reach 2.
- Reach 2 has high spawning and rearing potential for most sport fish.
- mature Arctic grayling collected in Reach 3.
- large number of mountain whitefish observed in Reach 3.
- spawning and overwintering potential in Reach 3 appears excellent although success of upstream passage past the upper end of reach during spring freshet is difficult to predict.
- no fry observed in Reach 4.
- no fish captured or collected in Reach 5 or 6 although suitable habitat appeared abundant.
- headwater areas may be less productive than lower reaches.
- overwintering habitat is scarce in upper reaches.
- six fishing parties (total of 15 - 20 people) observed at mouth in August.
- heavy angling pressure in Reach 1.
- Reach 2 heavily fished in lower part.
- access to upper section of Reach 2 restricted by high cutbank, therefore, fishing pressure is light.

Ducette Creek (Fig. 40)

- Arctic grayling and Dolly Varden observed at mouth.
- no fry observed.
- overwintering potential is low.
- creek probably of only moderate importance to Arctic grayling.
- Dolly Varden feed and, possibly, spawn at mouth.
- no sign of angling activity other than at mouth.
- debris in bay restricts access to mouth, therefore, angling pressure is probably light.



Figure 39 CLEARWATER CREEK WATERSHED SHOWING SURVEYED REACHES AND GILLNET SITES

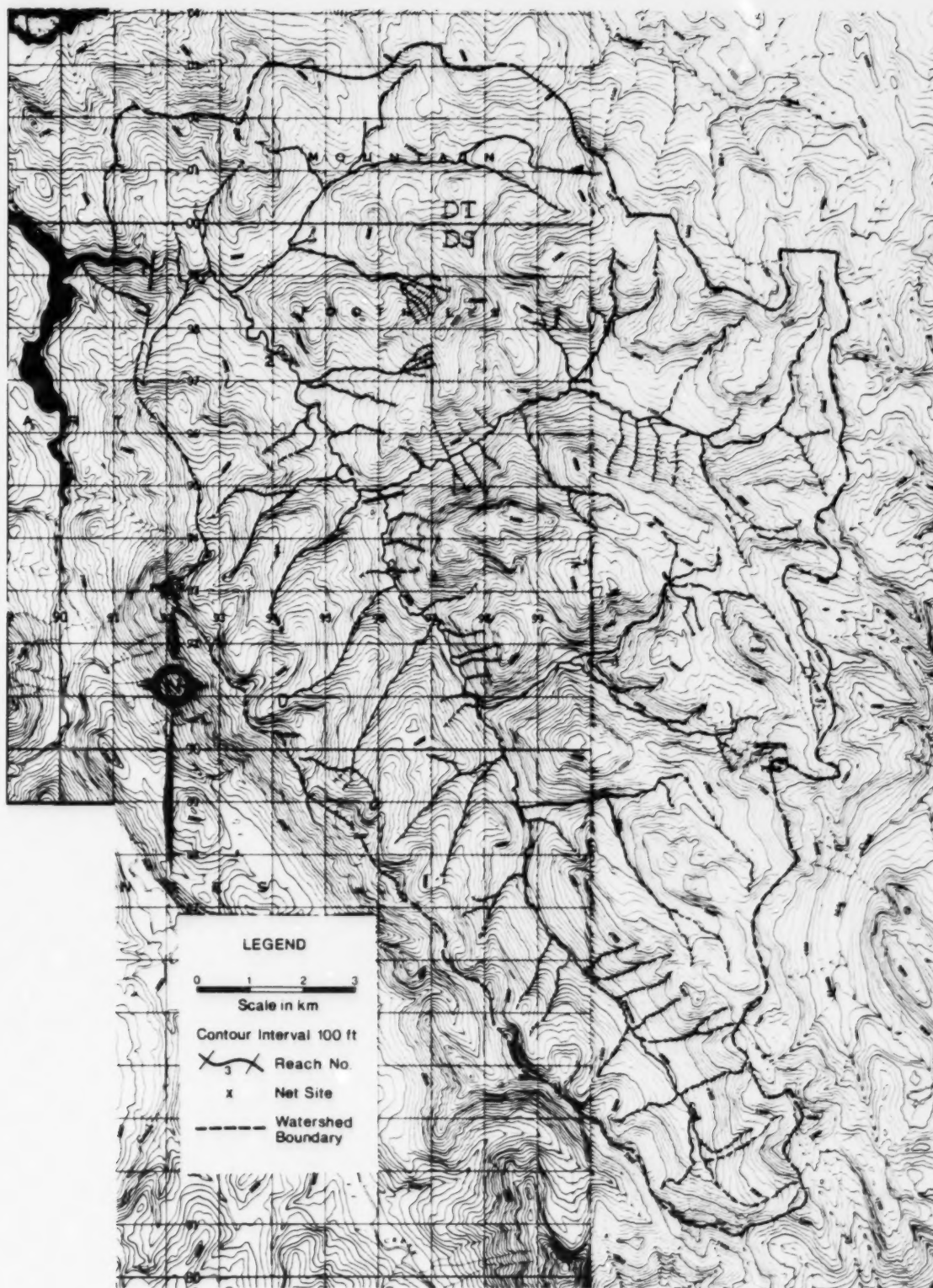


Figure 40 DUCETTE CREEK WATERSHED SHOWING SURVEYED REACHES

Dunlevy Creek (Fig. 41)

- collected mountain whitefish, rainbow trout and redbreast shiner.
- observed whitefish and trout fry in shallows; this stream is probably used for spawning and rearing of these species.
- overwintering habitat probably limited.
- rainbow trout are probably resident.
- remains of a Dolly Varden collected at mouth.
- Arctic grayling were not sighted or collected.
- creek is important to maintain whitefish and rainbow trout because of relative abundance of spawning and rearing habitat.
- several fishermen observed at mouth.
- road along east bank of stream.
- creek probably fished throughout lower 5 km.

Nabesche River (Fig. 42)

- collected Dolly Varden, Arctic grayling, rainbow trout and mountain whitefish.
- lower reach probably not used as spawning or rearing area but rather as a feeding area, especially near mouth.
- no fish collected in Reach 2.
- Reach 2 has little spawning potential.
- Reach 3 has spawning and rearing potential for Arctic grayling and mountain whitefish.
- Dolly Varden probably utilize Reach 3 as feeding area.
- Dolly Varden utilize Reach 4 for spawning, rearing and feeding.
- Arctic grayling may utilize Reach 4 for spawning and rearing.
- abundant overwintering habitat in Reach 4.
- Nabesche River is moderately important for Dolly Varden, Arctic grayling and mountain whitefish.

Pardonet Creek (Fig. 43)

- collected Arctic grayling, Dolly Varden and slimy sculpin.
- no fish collected from pool near mouth.
- utilized for spawning by arctic grayling and Dolly Varden.
- Dolly Varden may be resident.

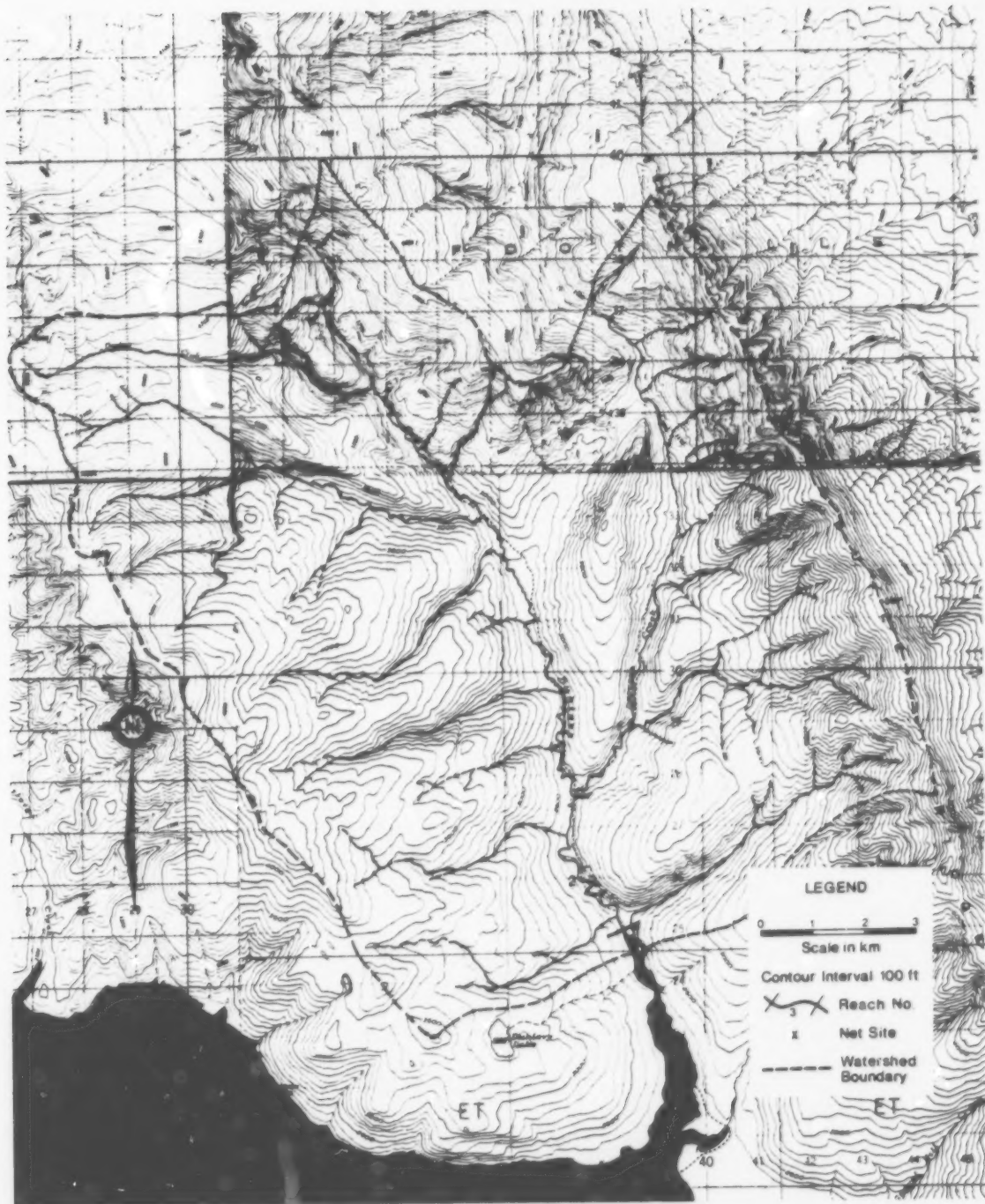


Figure 41 DUNLEVY CREEK WATERSHED SHOWING SURVEYED REACHES



Figure 42 NABESCHE AND WEST NABESCHE RIVER WATERSHEDS SHOWING SURVEYED REACHES AND GILLNET SITES

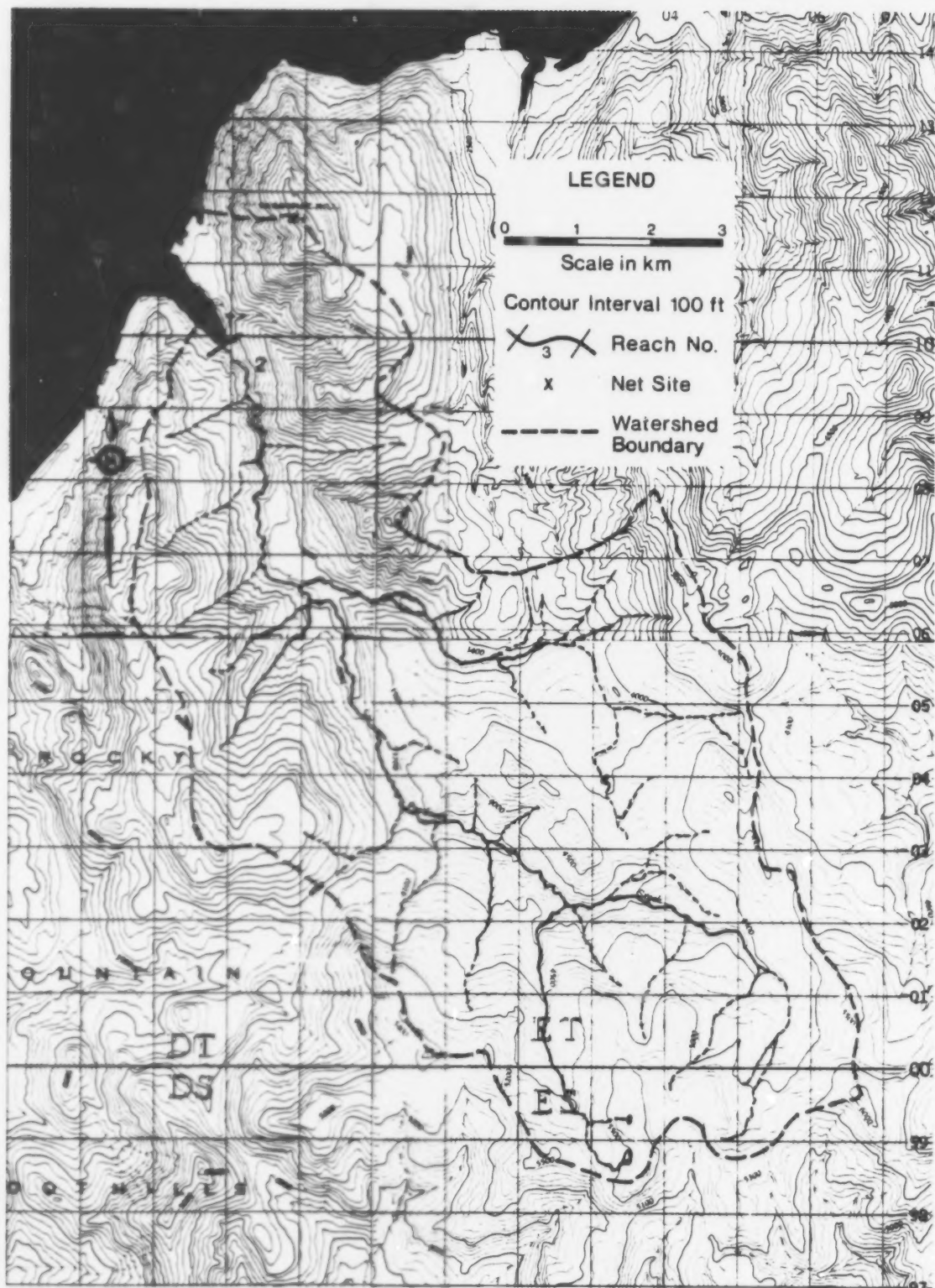


Figure 43 PARDONET CREEK WATERSHED SHOWING SURVEYED REACH

Pardonet Creek (continued)

- overwintering habitat limited.
- important stream for Arctic grayling but not for fall spawners (low water levels limit usefulness).
- fishing pressure probably light and confined to mouth.

Point Creek (Fig. 44)

- Arctic grayling only species collected.
- no fry collected or observed.
- lower end of Reach 1 may be barrier to fish passage at low flows.
- overwintering potential probably low.
- Reach 2 has some spawning habitat but little rearing habitat.
- creek probably of limited importance to Arctic grayling.
- evidence of angling activity at mouth.
- total angling effort probably low.

Schooler Creek (Fig. 45)

- collected Arctic grayling, Dolly Varden and rainbow trout.
- no fry observed or collected.
- creek probably used as spawning, rearing and feeding area by all three species.
- overwintering habitat probably restricted.
- creek of limited importance to fish.
- four fishing parties (16 anglers) observed at mouth.
- fishing pressure probably restricted to mouth.

Selwyn Creek (Fig. 46)

- collected Arctic grayling and Dolly Varden.
- observed Arctic grayling, Dolly Varden, longnose sucker, mountain white and, possibly, lake whitefish at creek mouth.
- all suitable spawning habitat occurs at lower end of Reach 1.
- Arctic grayling abundant in Reach 2.
- fry observed in Reach 2 although spawning and rearing habitat appeared limited.

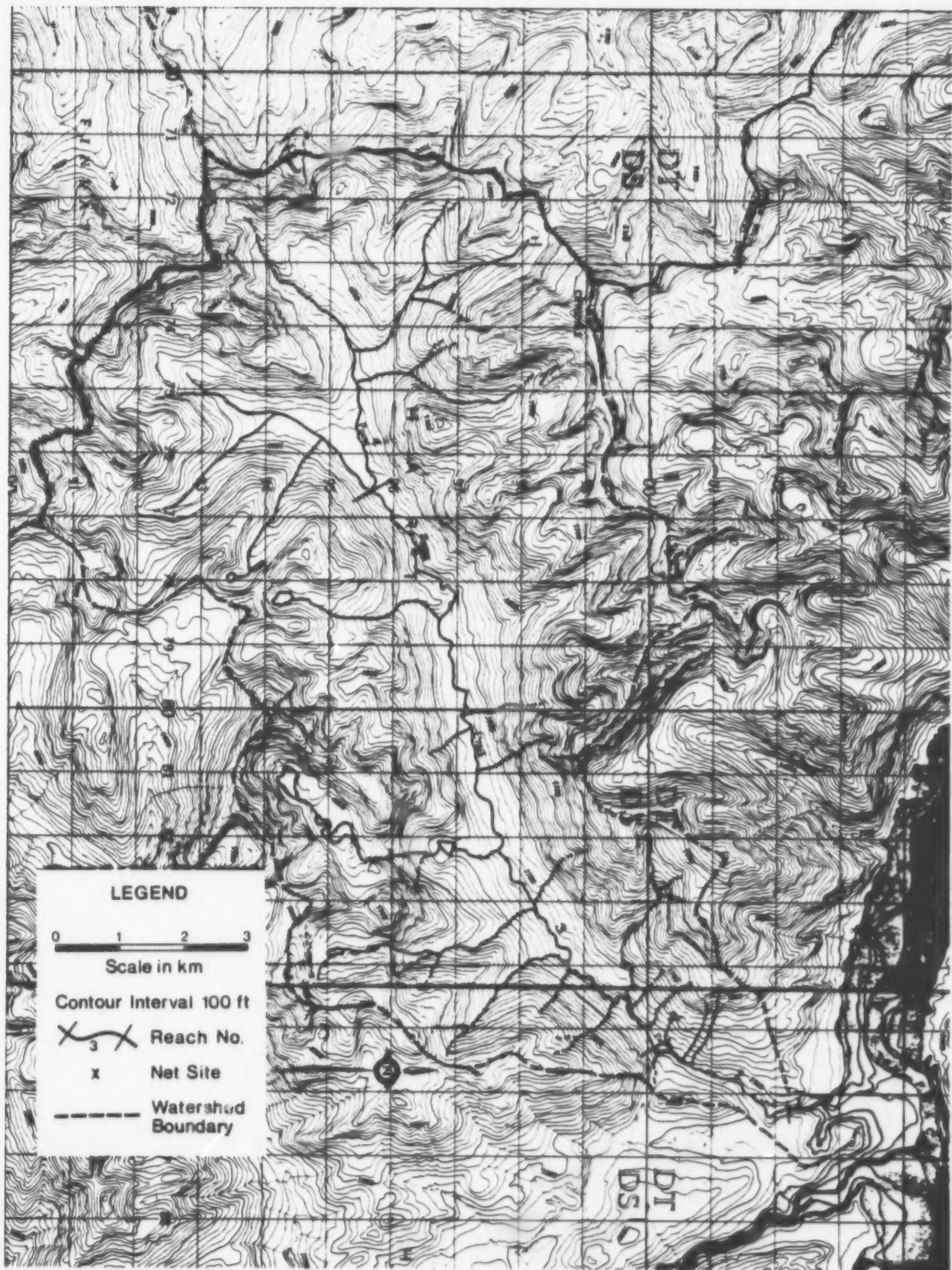


Figure 44 POINT CREEK WATERSHED SHOWING SURVEYED REACHES

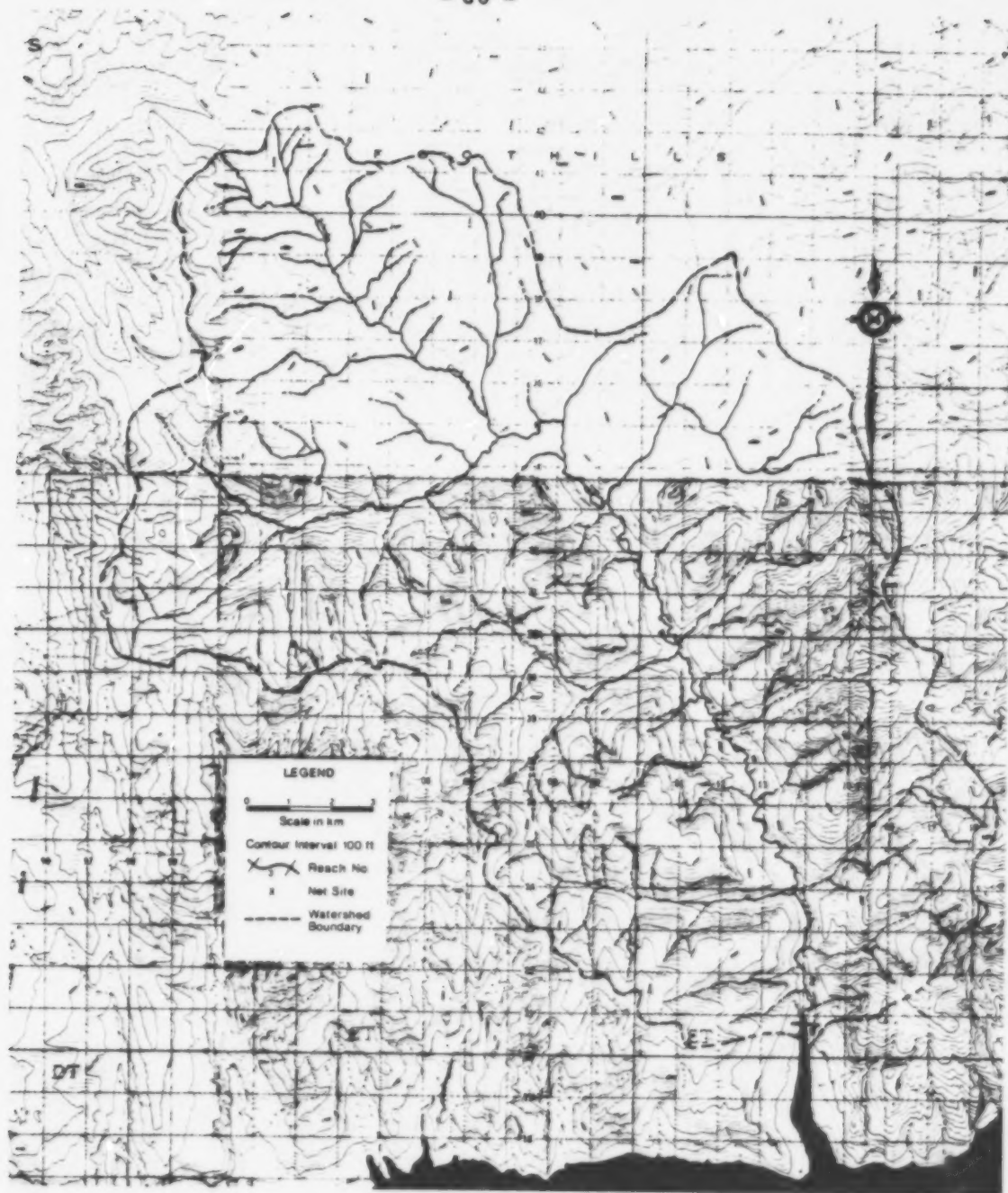


Figure 45 SCHOOLER CREEK WATERSHED SHOWING SURVEYED REACHES

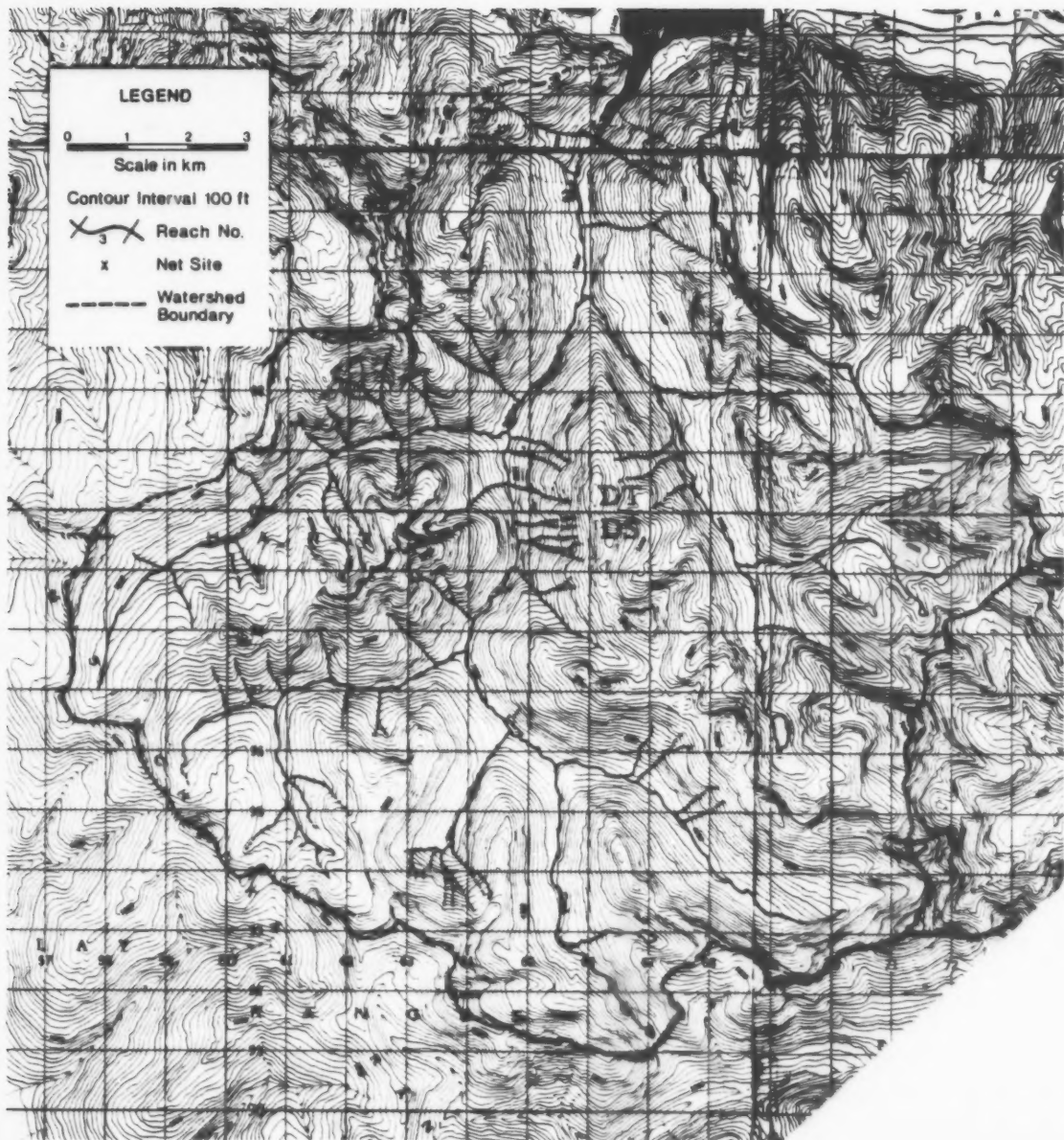


Figure 46 SELWYN CREEK WATERSHED SHOWING SURVEYED REACHES

Selwyn Creek (continued)

- overwintering habitat probably very limited.
- creek mouth probably important to wide variety of species for spawning and/or feeding.
- creek of limited importance to Arctic grayling.
- angling likely restricted to mouth and probably light to moderate because of distance from boat launches and population centres.

Stott Creek (Fig. 47)

- collected Arctic grayling and rainbow trout.
- all captured fish were reservoir fish.
- numerous trout near base of falls.
- rainbow trout may spawn at base of falls (actually in lake).
- no fry or juveniles observed.
- stream has little importance to fish because of impassible falls at mouth.
- trout attracted to falls, possibly for resting, feeding or spawning.
- probably very light fishing pressure at mouth of bay in lake.

West Nabesche River (Fig. 42)

- observed a fishing party of four at mouth.
- fishing probably confined to mouth.

Wicked River (Fig. 48)

- sampled Arctic grayling, Dolly Varden, mountain whitefish and rainbow trout.
- no fry observed in Reach 1.
- spawning of sport fish probably occurs in Reach 1.
- fish access to Reach 2 obstructed by falls.
- small, sexually mature Dolly Varden (probably stream residents) collected in Reach 3.
- no fry collected or observed in Reach 3.
- mouth of river is one of few areas in Peace Reach Basin where large Dolly Varden found.

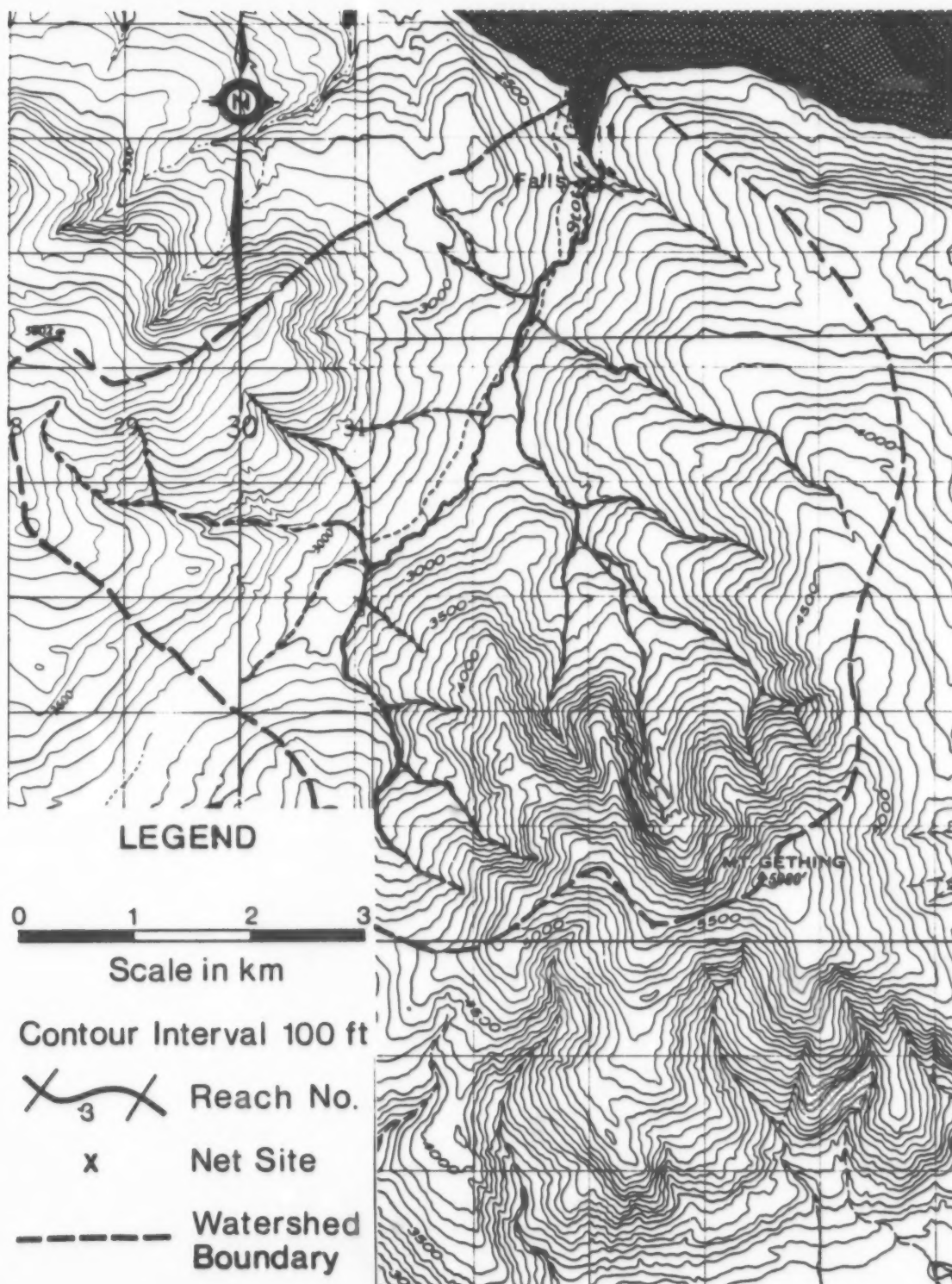


Figure 47 STOTT CREEK WATERSHED

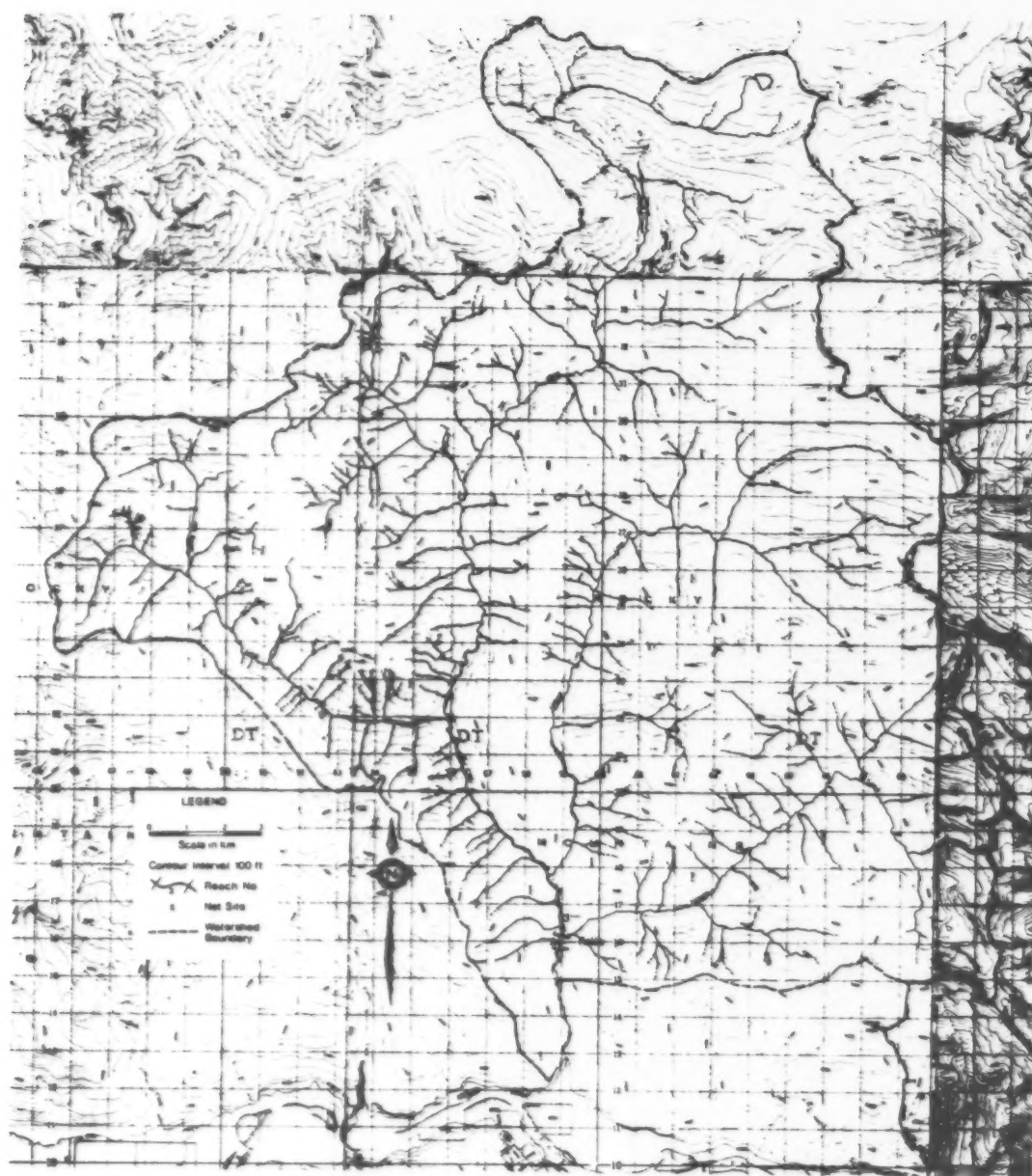


Figure 48 WICKED RIVER WATERSHED SHOWING SURVEYED REACHES

Wicked River (continued)

- fishing pressure confined to mouth.
- mouth probably heavily fished because of relative proximity to Finlay Forks and presence of large Dolly Varden.

Unnamed Creek "A" (Fig. 49)

- Arctic grayling only species collected.
- creek probably of low importance since spawning and rearing habitat limited.
- probably utilized only by spring spawners as low water levels in fall limit access to upstream areas.
- overwintering potential appears quite poor.
- evidence of angling activity near mouth.

Summary of Peace Reach Basin

On the north side of the Peace Reach Basin, creeks at the western end, e.g. Wicked River, are steeper than those in the eastern foothills, e.g. Dunlevy Creek. Streams on the southern side do not show this tendency, i.e. streams at the eastern end are short and steep, e.g. Stott and Pardonet creeks (Fig. 50). The major tributaries, e.g. Nabesche, Clearwater and Carbon, have large areas of low gradient stream, and therefore, have the greatest amount of suitable spawning and rearing habitat (Fig. 50). Dunlevy Creek was the only medium sized stream surveyed that had a high spawning and rearing potential.

Dolly Varden were not as common as in the Finlay Reach Basin where prespawning runs were observed in early August. Dolly Varden appear to utilize only the larger rivers for any distance upstream of the lake, e.g. Nabesche River, Clearwater and, probably, Carbon creeks, although mouths of smaller tributaries are probably utilized as feeding areas. Small Dolly Varden, which were probably stream resident, were collected in the Wicked River and Pardonet Creek. Dolly Varden in spawning condition were sampled in the Nabesche River on September 17; however, the peak spawning period may occur later.

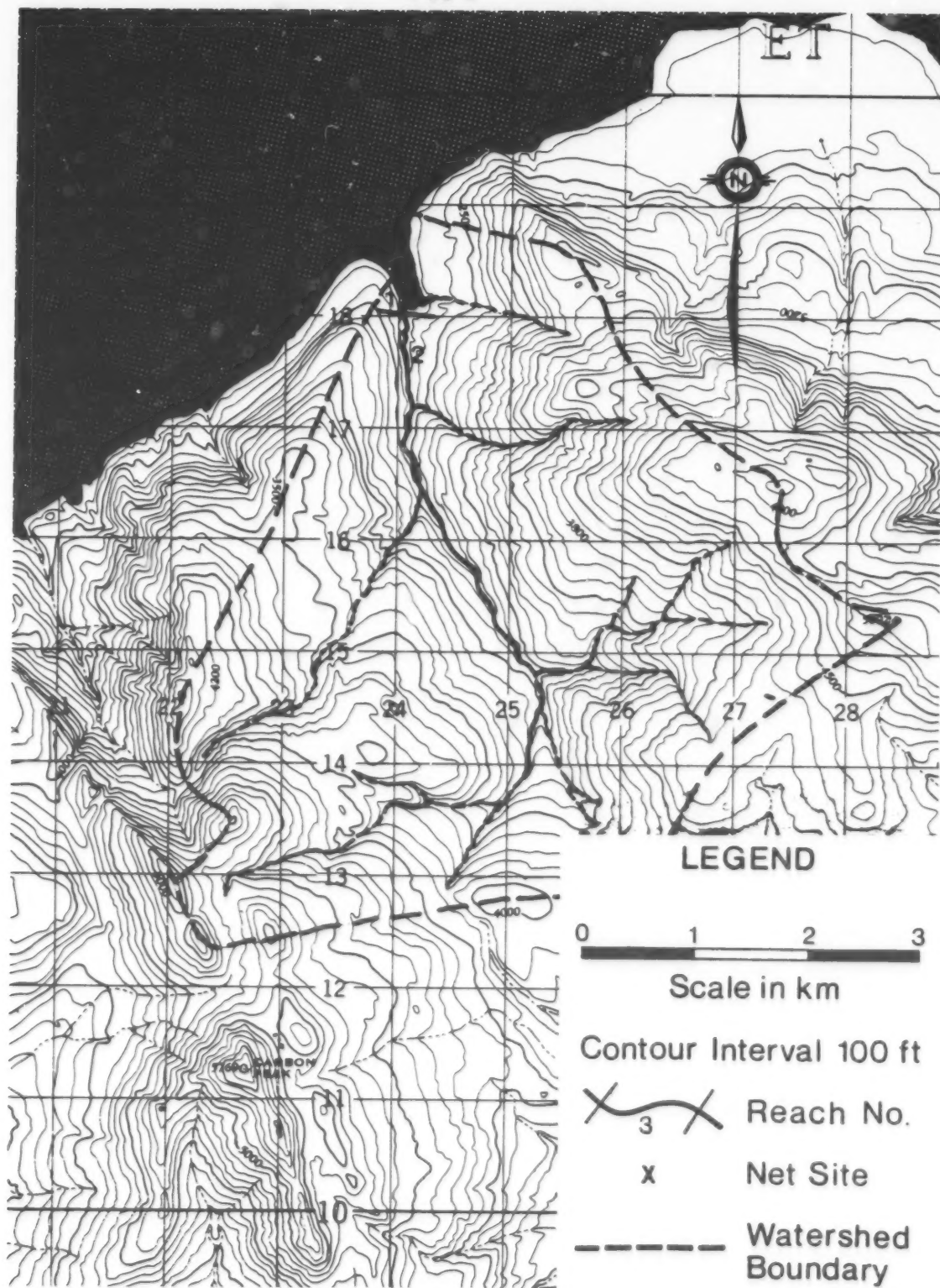


Figure 49 UNNAMED CREEK "A" WATERSHED SHOWING SURVEYED REACH

PEACE REACH BASIN

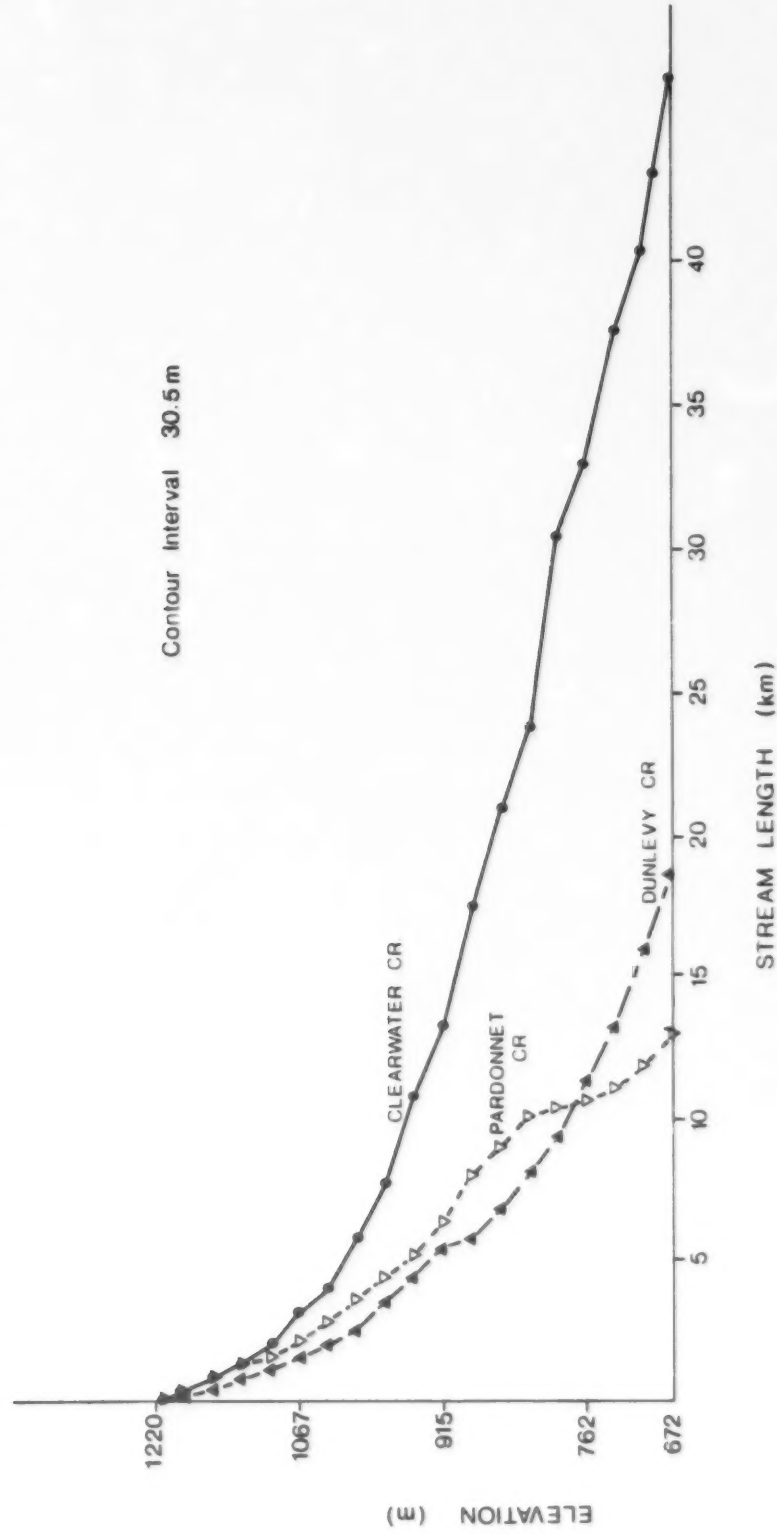


Figure 50 DUNLEVY, PARDONNET AND CLEARWATER CREEKS STREAM GRADIENT PROFILES

Rainbow trout were uncommon and found only in Schooler and Dunlevy creeks and the Nabesche River. Rainbow trout collected from Dunlevy Creek were probably resident fish.

Mountain whitefish, although distributed throughout the entire Peace Reach Basin, were not numerous. These low numbers may result from the timing of the survey, i.e. prior to spawning which probably occurs from September to late autumn. Mountain whitefish were collected from Bernard Creek, and the Wicked and Nabesche rivers, while numerous fry were observed in Dunlevy Creek.

Arctic grayling were found throughout the Peace Reach Basin and were the most common and numerous species encountered during the survey. Grayling were found to utilize low gradient streams, e.g. Carbon Creek, as well as steeper gradient streams, e.g. Pardonet and Selwyn creeks. Spawning and rearing potential for this species appears high in most streams.

The Peace Reach Basin is heavily fished, with boat launching sites at the east and west ends. In addition, access to creek mouths is good since floating log debris is limited in this basin. Numerous fishing parties were observed and many old camps found. Fishing pressure appears localized at creek mouths with only a few exceptions, i.e. the Clearwater and Carbon creeks where trails permit anglers to walk short distances upstream.

There is logging activity on the Nabesche River Bay, and in the Point and Clearwater Creek drainages. There is some mining exploration activity in the Carbon Creek drainage by Utah Mines Ltd.

Total length of available stream habitat in the Peace Reach Basin was 170 km. The total potential spawning length is 67 km. These lengths are low compared to the other two basins and indicate reduced spawning and rearing habitat in the Rocky Mountains compared to the Rocky Mountain Trench.

GROWTH RATES

A comparison of mean lengths of different sport fish from the lake and tributaries is given by age class in Table 7. All aged fish from both the tributary and reservoir studies have been included. No attempt was made to separate smaller stream resident fish from larger reservoir fish in the tributary fish data. Insufficient data were collected to develop growth curves for the various species. Although mean fork length is not an ideal criterion, it has been used for a rough comparison of stream and reservoir fish stocks.

Mean lengths of lake whitefish were similar in the Pack and Parsnip rivers and the reservoir. This suggests the same population of lake whitefish was sampled both in streams and in the reservoir. This also supports the hypothesis that lake whitefish are a lake resident species that migrates upstream to spawn in major rivers. Stream resident populations of lake whitefish may also occur, e.g. fish collected from Summit Lake appeared physically different (smaller and darker) and may be resident stock although sample size was too small to discern differences in growth pattern compared with reservoir resident stocks.

Arctic grayling during the reservoir and tributary studies were similar in size. This was expected as grayling are primarily stream dwellers. Arctic grayling captured from the reservoir were generally found in the vicinity of creek mouths (D. Barrett, per. comm., 1975).

Mountain whitefish captured in the reservoir were usually larger than those from streams while the younger age classes were more numerous in streams. This suggests mountain whitefish rear in streams and rivers although the growth differences may be an artifact of sampling technique. That specific age classes are larger in the reservoir suggests two distinct populations exist, i.e. lake residents (slightly larger due to the higher productivity of the reservoir) and stream residents. Even if lake resident populations exists, they likely utilize streams for spawning and, perhaps, rearing.

TABLE 7. Comparison of Growth of Williston Lake and Tributary Fish

SPECIES	AGE CLASS	<u>STREAM</u>			<u>RESERVOIR</u>		
		SAMPLE SIZE	MEAN LENGTH (mm)	STANDARD DEVIATION	SAMPLE SIZE	MEAN LENGTH (mm)	STANDARD DEVIATION
AG	1	3	93	35			
	2	1	184				
	3	12	338	51	1	300	
	4	59	347	30	12	343	11
	5	13	348	14	13	352	13
	6				4	361	10
DV	3	5	374	117	1	250	
	4	7	447	144	10	288	29
	5	20	406	102	30	255	42
	6	12	448	160	50	441	75
	7	3	555	173	40	496	62
	8	1	555		20	583	60
	9				4	611	70
	10				1	775	
LW	1				80	192	19
	2	4	270	14	67	278	22
	3	21	345	40	77	346	27
	4	4	416	18	69	418	25
	5				20	439	30
MW	0	2	63	2			
	1	11	115	22			
	2	10	199	20	1	155	
	3	18	267	34	14	286	17
	4	43	281	32	115	303	12
	5	15	287	25	41	314	14
	6	1	330		1	340	
RBT	1		153	31	24	237	24
	2	13	249	55	29	284	33
	3	22	369	46	39	339	34
	4	7	401	41	39	382	23
	5				17	413	17

Younger age classes of Dolly Varden were consistently larger in streams. Unfortunately, variance is high in both data sets (perhaps reflecting aging difficulties) so the difference may not be significant. Most Dolly Varden sampled in streams were mature although the sampling technique, i.e. angling, could have influenced the results, e.g. catching only large fish.

Rainbow trout and lake whitefish were the only lake species of which large numbers of young fish were captured. Coincidentally, relatively few young fish were captured in streams. Mean fork lengths of 1+ and 2+ fish from streams were smaller (153 and 249 mm, respectively) than the same year classes from the reservoir (237 and 284 mm, respectively). This situation is reversed for the 3+ and 4+ age classes which are primarily lake fish that have migrated upstream, usually to spawn. These size differences are probably due to the small samples size. Although the smaller age 1+ and 2+ fish may reflect slower growth rates in streams compared to the reservoir, small sample size may be responsible.

SPAWNING AND DISTRIBUTION OF FISH

Sexually mature rainbow trout, with gonads approaching spawning condition, were angled through the ice in March and April 1975 at the mouth of Weston Creek. The peak spawning period for rainbow trout in tributaries is unknown, but probably occurs after spring runoff. Spawners were found up to mid-June but afterwards only stream residents were collected; i.e. reservoir trout had migrated downstream after spawning.

Since trout fry were collected in downstream fyke nets in early September and very few 1+ trout collected in streams, it is suggested that most reservoir stock rainbow trout migrate downstream into the lake to rear after their first summer (0+). Stream resident trout occur in many streams, particularly in the smaller, low gradient streams of the Parsnip Reach Basin. As adults they were discernible from reservoir stocks by their small size, bright coloration, distinctive markings (parr marks) and well-developed gonads at maturity. It was not possible to distinguish between stream and reservoir trout fry.

Peak spawning for Arctic grayling was in June. Adult grayling resided in streams during summer, their gonads showing extensive maturation by autumn. Emergent mountain whitefish fry were observed in June. During June, July and early August, schools of spawning longnose and largescale suckers were observed in tributaries of the Parsnip and Finlay Reach basins as water velocities decreased. Dolly Varden began moving up tributaries in late July and August in the east Finlay Reach Basin. During this period, rainbow trout and Arctic grayling fry were observed to emerge and commence feeding.

During September, Dolly Varden were spawning while mountain whitefish schooled prior to spawning. For most species, fry observations were less common than in August. These fry may have moved down to the reservoir or into stream habitats less conducive for observation.

During October and November, lake whitefish begin moving up the Pack and Parsnip rivers. Mountain whitefish spawn during October and November while the gonads of Arctic grayling show further maturation. Lake whitefish probably spawn in mid-November then, presumably, return to the reservoir. Lake whitefish fry were collected from the Manson River in late June. These fry possibly migrate to the lake after emergence since no large fry or juveniles were collected later in the year. Other major rivers might also be used for spawning by this species.

The chronology of spawning activity may vary yearly. Reports of ripe rainbow trout were received in early June from reservoir anglers at the vicinity of Finlay Forks, which has a bouldery bed and was formerly quarried. It is conceivable that reservoir rainbow trout utilize other suitable spawning areas within the lake, however, the present data indicate tributary streams are the major spawning grounds. A concentration of reservoir rainbow trout, observed in the Pack River in late October, were nearing the final stages of gonadal maturation. These fish probably overwinter in this condition prior to spawning in the spring.

The length of potential spawning habitat was greatest in the Parsnip Reach Basin (507 km in 1282 km of available habitat), slightly lower in the Finlay Reach Basin (261 km in 645 km of available habitat), and least in the Peace Reach Basin (66.5 km in 177 km of available habitat).

PARASITES

Nematodes were found relatively frequently in the body cavity of both stream and reservoir fish. Cestodes were uncommon and generally only found in Dolly Varden pyloric caecae. Parasitic copepods were common on reservoir resident rainbow trout, appearing mainly in the throat and opercular region, and in the axis of the pectoral fins. These parasites were found on fish collected in all basins. Numerous unidentified cysts were observed on the stomachs of lake whitefish caught in the Crooked River in November. In general, present parasite loads are not affecting the physical condition of either stream or lake fish.

DISCUSSION

SPAWNING AND REARING CAPABILITY

Variation in topography accounts for much of the difference in available spawning and rearing habitat in tributaries to the three reach basins. Considering only streams surveyed, the Parsnip Reach Basin has the greatest length of potential spawning habitat (507 km) as compared to Finlay Reach Basin (261 km) and Peace Reach Basin (67 km). This may, however, be due to the greater survey effort being expended on the Parsnip Reach Basin versus the Finlay Reach. Since the Finlay Reach Basin has a greater total watershed (32440 km² versus 28300 km² in the Parsnip), it may have an equal or even greater amount of potential spawning habitat. The total watershed of the Peace Reach Basin (5540 km²) is considerably less and is reflected in the reduced potential spawning habitat (67 km²). If "available length" is taken as a measure of available habitat for juvenile rearing, tributaries in the Parsnip and Finlay Reach basins have much more rearing habitat than Peace Reach Basin tributaries (Parson - 1282 km; and Peace - 177 km).

Comparison of stream cross-sections (Fig. 22, 34 and 50) demonstrate that small streams in the Peace Reach Basin have the steepest average gradients (3 to 4%) of all basins. Similar streams in the Finlay and Parsnip Reach basins have much lower slopes (1 to 3%). Larger creeks and rivers have considerably lower slopes (less than 1%) in the Peace Reach Basin although streams are much more frequent in the Finlay and Parsnip Reach basins (Table 1). Because of the mountainous terrain in the Peace Reach Basin and on the east side of the Parsnip Reach Basin, steep drops (greater than 5%) occur frequently. Platts (1974) found similar fish species in very high gradient streams (up to 25%). However, on-site observations indicate streams with comparable gradients were not inhabited and often were potential obstacles to upstream movement. Rearing habitat for fry in streams with such high gradients is extremely limited due to lack of sheltered waters.

Unlike the Peace Reach Basin where streams emerge from mountains directly into the lake, Finlay and the Parsnip Reach basin streams have some low gradient bottomland to flow through before entering the reservoir. This trend is especially prevalent on the west side of Parsnip Reach Basin where bench land at an elevation of about 760 m remains unflooded. These sections of low gradient stream provide sheltered, deep (1 m) pools and slow (1-2 m/s at high water) riffles which are especially suitable for spawning and rearing. All large and major river systems have sheltered backwaters and pools that provide suitable rearing habitat. Almost all these large and major river systems flow into the Parsnip and Finlay Reach basins.

Most sampled fish were captured or observed in low gradient (<2%) sections of stream. The only species abundant in high gradient areas (>5%) was Arctic grayling. Juveniles of all species were very rare in headwater regions (800 m in elevation) of small and medium streams. Capture success rates for adults and juveniles decreased with distance up these streams. Platts (1974) however, found the highest fish densities in stream sections where gradient was 4%. Platts also determined that the highest fish densities and greatest species diversity occurred at 1500 m. Higher densities at lower elevations (1100-1400 m) were attributable to one species, rainbow trout. Small fish

were common at high elevations (1500-2000 m) and in steep gradients (4-6%) indicating utilization as rearing habitat. Platts did not report the gradients or elevation where spawning occurs.

The capture and observation of juvenile fish were especially frequent in the Parsnip and Nation rivers. Mountain whitefish, rainbow trout and Arctic grayling were the main species captured. All major rivers probably provide important rearing habitat for these species. The lake may also serve as rearing habitat owing to extensive littoral area with abundant cover and, potentially, high food availability. Observations of unidentified fry were frequently made in such regions.

Differences in preference, by species, for spawning habitat are more difficult to document. Rainbow trout was the only species spawning in small (less than 50 km drainage area) streams. Arctic grayling, rainbow trout and mountain whitefish were observed spawning in medium sized (50 - 400 km²) streams. Dolly Varden prefer larger streams in Lafferty Creek (262 km²). Lake whitefish are only known to spawn in major (greater than 1500 km²) systems. If this species prefers deep water (up to 8 m deep) areas for spawning as reported by Scott and Crossman (1972), only the major systems have extensive channels of deep (>1 m) water. Whitefish eggs were found at Parsnip and Pack River systems where this species is known to spawn. The gradients at which spawning was observed were always less than 2% for all species observed (Arctic grayling, rainbow trout, mountain and lake whitefish, Dolly Varden, longnose sucker). Steeper gradients are probably utilized much less for spawning. All aspects of the spawning life history and habitat preference for the above species is consistent with published reports (Scott and Crossman 1973).

There is a large amount of available spawning habitat for all species, both reservoir and stream residents, therefore, spawning habitat may not limit maximum size of fish populations in either the reservoir or streams. Rather, the availability of food or cover (depending on the particular situation) would be limiting (Platts 1974). The great increase in abundance of fish

after impoundment would substantiate this claim as both available food and cover were greatly increased while spawning habitat was flooded. Although spawning habitat was lost due to impoundment, the remaining habitat in certain areas is probably still adequate for present population levels. In particular, lake whitefish and rainbow trout have good representation in the younger age classes captured in the reservoir. This suggests these species have reproduced since full impoundment.

EFFECTS OF IMPOUNDMENT

The effect of impoundment on fish populations has largely been indirect. The major effect on streams and rivers, aside from flooding the most productive areas, has been the influence of annual drawdown. The average annual fluctuation of impoundment level is 17 m with the maximum low water level occurring immediately prior to spring runoff in April-May. The water level rises steadily to a maximum in August then declines at a steady rate until the next runoff period. The low and high water levels and rate of drawdown vary annually, therefore, are significant to fluvial species living near stream mouths.

The major effect of drawdown on spring spawners is to create obstacles to upstream passage, e.g. falls, particularly in the Peace Reach Basin where most streams enter the lake through a canyon. This is not a major problem in the Parsnip and Finlay Reach basins because the topography is not as mountainous. Rising water levels in the reservoir probably increase silt loading at creek mouths due to deposition of fluvial sediments and erosion of unstable, unvegetated banks below high water line. Sedimentation is very noticeable where streams enter the reservoir, and could lead to smothering of eggs deposited there. Low water levels affect fall spawners by limiting accessibility, particularly to smaller streams. In addition, since water levels continue to drop through winter until spring runoff, eggs laid in shallow areas at stream mouths in early autumn probably will be exposed as drawdown continues. This could be a serious problem in low gradient rivers and streams where impoundment levels influence water levels upstream of the mouth.

Ultimately this problem will affect the rate at which fluvial species adapt to lacustrine conditions. As a result, the length of time required for stabilization of the reservoir fish populations could be very long. Development of Williston Basin has accelerated due primarily to the reservoir, i.e. better access. As a result, exploitation of the fisheries resource has increased especially in the Parsnip Reach Basin.

CONCLUSIONS

1. Abundant potential spawning habitat exists in the tributaries of the Parsnip Reach (507 km) and the Finlay Reach (261 km) basins. Unsurveyed streams and sections of stream in both reach basins could increase these totals. Tributaries of the Peace Reach Basin have considerably less (67 km) potential spawning habitat as a result of the relatively low total drainage area (5540 km² compared to 28304 and 32443 km² in the Parsnip and Finlay Reach basins, respectively) and steep gradients (3-5%) in small streams.
2. High gradients (3-5%) in small and medium sized streams limit juvenile rearing capacity in the Peace Reach Basin except for Arctic grayling. Low gradients (0.5 - 2%) in similar sized streams of the Parsnip and Finlay Reach basins provide much greater habitat for juvenile rearing. Juvenile rearing in large and major rivers is enhanced by low gradients (<1%) and extensive slack water areas.
3. Rainbow trout, Arctic grayling, mountain whitefish, lake whitefish, Dolly Varden, longnose sucker and largescale sucker were observed spawning in tributaries. Most streams surveyed were utilized by stream resident and reservoir fish.

4. In Parsnip Reach Basin tributaries, juvenile rainbow trout, Arctic grayling, mountain whitefish, lake whitefish, Dolly Varden, longnose sucker and lake chub were observed. Juvenile rainbow trout and mountain whitefish were collected in Finlay Reach Basin tributaries. In Peace Reach Basin tributaries mountain whitefish, Arctic grayling and rainbow trout juveniles were collected.
5. Adults of the aforementioned species were sampled in tributaries of all three reach basins except for lake whitefish which was found only in major rivers of the Parsnip and Finlay Reach basins.
6. The major effects of impoundment on tributaries have been:
 - a) flooding of large areas of low gradient ($< 2\%$) stream habitat eliminating spawning, juvenile rearing and overwintering habitat,
 - b) competition between lake and stream stocks for the remaining available spawning habitat. This survey suggests sufficient habitat exists in certain areas for the current population levels,
 - c) establishment of extensive littoral areas in the reservoir to provide considerable juvenile rearing habitat. Most fry, especially from small and medium-sized streams probably move into the lake to rear. Relatively few juvenile fish were observed considering the populations of adult fish in the reservoir.
 - d) extensive areas being exposed during winter and spring because of drawdown. Spawning in autumn, especially of lacustrine species, may result in eggs being deposited in unsuitable habitat and subsequently dying. Siltation at stream mouths may result from water level fluctuations eroding unstable bank material. This may degrade habitat value for spawning and rearing.
7. The Parsnip and Pack rivers were the most important tributaries for lake whitefish spawning although there was evidence that the Manson and Ingenika rivers were also used. It is possible that lake whitefish utilize other major systems in the Finlay and Parsnip Reach basins. There was no evidence of Peace Reach Basin streams being used by this species.

8. Tributaries on the east side of the Finlay Reach Basin are particularly important for spawning Dolly Varden.

RECOMMENDATIONS

1. Proposed resource-use plans for east Finlay Reach Basin tributaries should be closely scrutinized due to their importance to spawning Dolly Varden. Major streams in the Peace Reach Basin merit the same consideration due to the shortage of suitable spawning areas.
2. Although spawning and rearing habitat may not be limiting, overfishing appears to exert a considerable negative influence on fish stocks in tributaries.

Non-compliance with regulations, e.g. catch limits and stream closures, was observed on east Parsnip Reach Basin streams during the spring where road access is good and when rainbow trout were spawning. Many anglers stated stream populations of rainbow trout were extremely small compared to previous years.

Enforcement of stream closures and catch limits should be increased, particularly in the spring. Angling pressure should be monitored on east Finlay Reach Basin streams during the summer when Dolly Varden are moving into streams. The Conservation Officer Service should acquire a seaworthy vessel to effectively patrol this area and check anglers on the reservoir.

In addition to increasing enforcement, regulations should be modified. Stream angling is generally restricted to creek mouths. Many anglers do not concern themselves with stream closure regulations because they feel they are fishing in the reservoir. Existing closures should be expanded to include mouths of important creeks at specific times to provide the protection needed by spawners.

3. Because there was a proposal for a McGregor River diversion into the Parsnip drainage for hydro-electric purposes, further inventory of lake whitefish spawning areas should be made. This would enable a thorough evaluation of the proposed diversion on lake whitefish stocks since the Parsnip River appears the most important spawning area for this species.
4. Further information should be collected on overwintering fish. Ice fishing at stream mouths is popular sport in the area and high success rates for Dolly Varden and rainbow trout have been reported. These data would contribute to a better understanding of fish movements and overwintering conditions in the reservoir and streams.

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APPENDIX 1

FISH MATURITY STAGES (Kesteven 1960)

I - immature; sex may be discernible; gonads very small.

D - developing; will not spawn in present season.

M - mature; will spawn in present season.

R - ripe; spawning occurring.

S - spent; recently completed spawning.

APPENDIX 2

PHYSICAL DATA, PARSNIP REACH BASIN, WILLISTON LAKE

PARSNIP REACH BASIN STREAM DESCRIPTION

Tributary	Sample Date	Latitude	Longitude	N.T.S. Map-Sheet	Total Length (km)	Access. Length (km)	Potent. Span Length (km)	Width (meters)	Discharge (m ³ /sec.)	Average Gradient (%)	Temperature		Drainage Area (km ²)
											Air	Water	
Anzac	6-9-75	54°	122°	93J	100	100	25		47.5	0.5	15	10	--
Blackwater	26-06-75	55° 42'N	123° 45'W	930	40.6	46	23	8-10	6.8-9.4	1.0	11	10	580.7
Centennial	30/06	56° 01'N	124° 15'W	93N	11.6	6.0	2.0	6.5	1.7	5.0	16	7	64.5
Cut Thumb	19/07	55° 33'N	123° 20'W	930	28.6	3.5	1.5	15	4.0	2.0	18.0	11.0	128.2
Eklund	28/06	55° 50'N	123° 57'	930	19.2	15	6	37	13.4	3.0	13	6.5	250.0
Hominka	10/11	54°	122°	93J	45	45	11	--	--	--	-3	0.5	--
Izaac	04/09	55°	123°	930	21	21.0	10.0	--	3.2	2.0	13.0	8.5	--
Klmita	--	55°	123°	930	4	2.0	4.0	--	--	5.0	--	--	--
Lignite	10/09	55° 10'N	123° 09'W	930	26.0	26.0	10.0	5.5	0.53	1.8	10	8.5	155.0
McLeod	8/11	54°	123°	93J	--	--	--	7	--	--	-3	0.5	--
Manson	26/06	55° 43'N	123° 50'W	930	93.0	83.0	40.0	47.0	35.5	0.6	13	9	1532.3
Mischinsinika	--	55° 11'N	123° 04'W	930	30.5	--	--	16.0	--	1.8	--	--	237.5
Misinchinka	12/09	55°	122°	930	70	70.0	18.0	--	7.7	1	10.0	9.0	--
Mugaha	13/06	55° 24'N	123° 11'W	930	25.5	14.0	5.0	9.0	12.9	2.2	11.0	5.0	152.0
Nation	10/09	55° 27'N	123° 37'	930	215.5	126	60	60-70	--	0.25	1.0	12.0	5883.9

PARSHIP REACH BASIN STREAM DESCRIPTION

Tributary	Sample Date	Latitude	Longitude	N.T.S. Map-Sheet	Total Length (km)	Access. Length (km)	Potent. Span Length (km)	Width (meters)	Dis-charge (m ³ /sec.)	Average Gradient (%)	Temperature		Drainage Area (km ²)
											Air	Water	
Omineca	18/09	56° 08'N	124° 27'W	94C	219.5	219.5	110	45	--	0.25	15	10	5851
Oslinka	--	56° 05'N	124° 32'W	94C	114.0	114.0	50	--	--	0.5	--	--	2051.6
Pack	9/09	55° 06'N	123° 06'W	930	125.0	80.5	30.0	45	no measur	0.05	17.0	14.0	3994
Parship	7/09	55° 10'N	123° 04'W	930	175.5	145.0	43.0	75	98-473	0.3	14.0	8.0	4669
Patsuk	18/6/75	55° 36'	123° 25'	930	2.2	--	--	26	9.9	--	12	6.5	--
Reynolds	7/09	54°	122°	930	37	37.0	4.0	--	2.2	.8	14	8	--
Scott	21/06	55° 43'N	123° 35'W	930	25.0	21.0	7.0	15	no profil	2.2	18.0	5.0	196.8
Six Mile	--	55° 37'N	123° 24'W	930	11.6	8.1	8.1	--	--	3.4	--	--	133.4
Straudberg	29/06	55° 56'N	124° 05'W	93N	16.8	19.0	8.0	16.5	2.1-5.0	3.0	19	9	129.0
Table	23/10	54°	122°	93J	48.0	48	12	25.0	--	--	1.0	2.5	--
Tony	20/07	55° 27'N	123° 16'W	930	23.0	16.0	6.0	14.0	--	3.6	17.0	5.0	107.3
Tuty	15/06	55° 26'N	123° 14'W	930	17.0	4.0	1.2	12.0	3.4	3.2	12.0	5.0	57.7
Unnamed "B"	29/06	55° 56'N	124° 05'W	93N	15.1	11.5	2.0	4.5	0.6	4.0	19	9	32.3
Unnamed "C"	25/06	55° 31'N	123° 31'W	930	8.8	8.8	3.5	2.3	0.06	2.0	14	12.5	20.2
Weston	22/06	55° 49'N	123° 41'W	930	18.0	12.5	6.0	10.5	5.9	3.0	18.0	6.0-7.5	114.1

PARSNIP REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Anzac River 6-9-75	1	1.2			Sand bottom at mouth of river; coarse rubble at upper end of reach.	High on inside of meander (1-5m) Exposed gravel and clay		Willow & alder on banks; spruce and cottonwood in clumps	River much like Parsnip; deep and turbid, no gravel bars except on bank, current slow
	2		0.5	10-15	Fine rubble & coarse gravels; larger material in faster riffles; compaction moderate.			Same as Reach 1; perhaps more cottonwood & spruce	Some major curves with straight runs relatively wide, shallow river. Pools not well defined.
Blackwater 26-6-75	1				Coarse & fine gravels Loose compaction Periphyton covering gravel.	Steep gravel bank		Lodgepole pine and spruce forest elevated 6 - 8 m from stream level	Deep black colour; 2 m deep; appearance of slow moving swamp
	2				Fine gravels mixed with sand; some large (5-7 mm) coarse gravels; compaction loose, periphyton abundant	Typical gravel banks		Alder and willow near bank, spruce forest set back	60 cm deep, more current than Site One, looks swampy
	3		1.0	10-20	Fine gravels & sands Loose compaction No periphyton	0.5 - 1 m high		Logged area, grasses, equisetum, alder and willow	Well-defined channel, major curves

PARSNIP REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Blackwater 26-6-75	4		1-1.5	30-50	Coarse & fine gravels Some fine rubble Compaction loose (0-1). Bars of sand & fine gravel	Gravel 0.5 - 1 m above stream		Unlogged spruce to banks; alder and deciduous to banks	Major curves; fast moving stream; Gravel bars frequent
	5		1.0	5-10	Fine and coarse rubble mixed with coarse gravel	Gravel banks ele- vated from stream		Mature spruce forest	Straight with minor curves
	6		1.0	10-20	Coarse gravel and fine rubble; sand and silt in pools	Banks of gravel 50 - 70 cm high		Willow thickets on both sides, spruce forest set back	Straight with minor curves
Centennial 30-6-75	1		1.5-2	20-40	Coarse gravels & fine rubble; compaction loose in pools and moderately tight in riffles	Steep and treed		Mature spruce forest mixed with cottonwood; alders along edge of stream	Generally straight with minor curves
	1	200m	1.0	0.0	Coarse rubble inter- spersed with fine rubble, moderate compaction	Banks cut, exposed clay (height 1-1.5m)		No vegetation - dead and fallen trees	Major curves; no pools, no bars
	2	1.0	1.0	10-20	Scattered smooth boulders, coarse and fine rubble	Steep and exposed 5-7 m high		Mature spruce on both banks to edge of stream	Straight except for large meander around ridge
Cut Thumb	3	2.5	1-1.5	10-20	Same as 2	Not cut sharply	Falls seen from air are reputed to be an obstacle to fish	Mature spruce on both sides to streams edge	Major curves

PARSNIP REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Dina Creek	1	?			Silt and mud	Marshy		Equisetum on both sides	Marshy; basically straight
Eklund 28-06-75	Site 1		1.5	10-15	Coarse rubble mixed with fines; coarse gravel and sand in backwaters and pools	Banks cut (0.5-1m high); exposed gravel and sand		Mature spruce forest, alder and willow	Minor and major curves; Fast current; gravel bars well-developed
	2		2.0		Same as Site 1	Same as Site 1			Less volume of water than Site 1 otherwise the same
Hominka 10-11	1	?			Mixed sand and fine gravel; occasional coarser material	2-3 m high, exposed gravel and clay		Mostly willow, spruce set back	Swampy valley
Izaac 4-9	1	Indefinite	2.0	0-10	Angular, flat, fine rubble (10-15cm) with fine gravel and sand, moderate compaction	Incult only slightly .5m high		Mature spruce forest to bank	Minor curves and straight runs, fast current, few pools
Kimta	1	2.0	2.0	5.0	Coarse gravel and fine rubble (5-15cm), compaction loose, fine gravel on bars	Steep, incult 1-1.5m high		Willows and alders	River meanders and is frequently braided
	2	0.7	9-10 from map		--	--	A narrow gorge which is probably an effective barrier to fish	--	--

PARSNIP REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Lignite 10-9-75	Site 1	--	1.0	25	Coarse gravel & fine rubble in riffles; sand & coarse gravel in pools; compaction loose	0.5-1.5m high exposed gravel		Willow, alder, spruce / poplar behind a few cottonwoods	Major & minor curves; gravel bars frequent and well-developed
	2		0.5		Fine rubble & coarse gravel in riffles; pools coarse gravel with heavy algal growth	0.5-1.5m high exposed gravel		Willows and alder; poplar and spruce less frequent than Site 1; many cottonwoods	Major curves; slower current
McLeod 8-11-75	Site 3	--		20.0	Fine rubble & coarse gravels; sand in some back eddies; compaction loose	1-1.5m high exposed gravel		Primarily willow on edge; spruce & cottonwood set back	Straight runs and minor curves
Manson 26-6-	1	13.0	0.5	30.0	Fine & coarse rubble; Coarse & fine gravels & sand in pools and slower riffles; Compaction loose	Some cut banks with exposed slumping gravel; 2.5-5m high		Willow & alder on highest ground; spruce forest to edge of flood channel	Major curves; extensive braiding with frequent gravel bars
	2	2.5			Coarse rubble & boulders; bedrock reefs frequent	--		Spruce forest to edge	Straight runs with minor curves, shallow canyon section
	3	14.0			Slightly finer material than Reach 2; a few bedrock reefs; coarse & fine rubble	--		Spruce forest to banks	Very straight runs Few pools but very deep

PARSNIP REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (s)	Pools (s)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Manson 26-8-	4	11	0.5	30.0	Fine rubble & coarse gravel; a few larger rocks	Cut; exposed steep gravel; 0-1.5m high		Willow thickets on high ground; spruce forest to edge of flood channel	Major curves; extensive bar development; braided frequently
	5				Often mud bottom, elsewhere rubble and boulders	--		Spruce forest to bank	Smaller river; fewer bars; almost lake-like
Mischínka linka --	1	Indef	5-1.0	20-30	Fine & coarse rubble in riffle areas; fine gravel & sand in interstices	Exposed clay and sand usually; 0.5-1.5m high		Mainly willow and alder; mature spruce forest in back	Major curves frequently braided; many gravel bars; some major islands
Mischínka 12-09-	1	12.0	1.0	10-15	Fine rubble mixed with coarse gravel; scattered coarse rubble; compaction moderate	1.0m high of gravel; cut banks of exposed clay		Willow & alder along edge, but extend far back	Major curves in a broad valley; water turbid & fast
	2	28.0	0.5	20-30	Mud; occasionally some gravel cemented together with mud	High (2m) mud banks		Mostly willow and swamp land; some spruce set back	Major curves in a narrower valley than Reach 1; deep and muddy channel
	3	Indef		15.0	Coarse gravels & fine rubble; little silt on rocks; pools mostly fine gravels and sand; compaction moderate in riffles, loose in pools	Often 2m high with exposed gravel and sand		Alder and willow with extensive swampy area; spruce extensive in higher areas	Valley narrower than in Reaches 1 & 2, straighter runs and fewer curves

PARSNIP REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Mugaha 13-06	1	1.4	.5 - 1.0	15.0	Mostly fine rubble with silt, sand and fine gravels; compaction moderate	About 1-2m high; exposed clay & mud		Mature spruce forest; stands of cottonwood; alder & willow along edge	Often braided into two channels; meanders; gravel bars frequent
	2	5.0	0.5	30-40	Mostly fine rubble; covered with silt in calm areas; patches of fine & coarse gravel & sand in some shallow riffle areas; compaction moderately loose	Banks cut, often 1-1.5m high, stable		Primarily willow & alder with mature spruce set back	Bar development high; river extensively braided; many sheltered backwaters
	3	Indef	1.5-2	20.0	Coarse gravel mixed with fine gravel; some fine rubble; compaction loose	Not steeply incised	Short canyon (with bedrock exposed) section near falls; falls probable obstruction	Mature spruce to banks; some swamp next to stream	Mostly minor curves; some straight runs and major curves; good bar development
Nation 10-09	Site 1	--	0.5		Mostly coarse rubble; large boulders in riffle; compaction moderate in shallow areas	Not particularly high or cut		Willow, alder and poplar on bank; spruce mostly set back	Primarily a straight run at site; wide shallow river
Owinea 18-09	1	14	.5	10-20	Bars; primarily fine & some coarse rubble; Bed; mostly fine rubble with some coarse gravels	Narrow canyon - 20m Sheer rock walls; Banks to 1.5m high	Canyon <u>not</u> a barrier	Mixed spruce and poplar	--

PARSNIP REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Omneca 18-09	2	18	--	--	Similar to Reach 1 with a short bedrock section	--		--	Meanders; slow and deep
	3	6	--	--	Sand or mud	--		--	Straight runs with minor curves; sand islands
	4	Un-determined	0.5	--	Loose sand; bars of fine & coarse gravels mixed with much sand with a few larger rocks	Steep cutbanks up to 30m or more on outside bends; elsewhere 1-3m sand or mud		Spruce and poplar with willow and grasses	Meanders in tight bends
Pack 9-09-75	1	10.0	too gradual to meas.		Too deep to be visible	Steep, 1-3m high banks; some exposed gravel and sand		Deciduous shrubs, grasses on banks; alder, cottonwood, poplar & spruce at top of high banks	No apparent current; depth 5-7m; major curves
	2	2.5	--		Coarse gravel & fine rubble and scattered large boulders; compaction loose to moderate	Steep 1-3m high		Deciduous shrubs, willows, grasses; spruce forest above steep banks	noticeable current much shallower depth .5-1.5m; straight runs and some major curves
	3	7.0			No description	No description			
	4	31.0	too gradual		Fine rubble & coarse gravels; compaction moderate	Not especially steep or cut		Mature Spruce forest to banks	Wide, slow-moving stream; depth varies; some major curves

PARSNIP REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Pack 9-09-75	5	29.5	too gradual		Mostly mud-silt bottom; riffles of coarse gravels at site location; compaction loose	Level with river		Mature spruce to edge of water; willow and other shrubs common along edge	Like along Narrow Lake; some major curves and straight runs
	1	75	0.5	--	Too deep & turbid to judge in runs; riffles - fine & coarse rubble; silt covered; compaction moderate to tight	2-3m high; occasionally 10-50m exposed clay		Alder and willow along banks; spruce forest below Anzac; swamp between Sites 7 & 8	Primarily straight runs and minor curves; very turbid water
Parsnip 7-09-75	2	11.0			Mostly sand and mud; often fine gravel; compaction loose	Vary in height 0-1.5m		Mature spruce forest, heavily logged in sections; occasional cottonwood stands	Deep (2m) slow moving section; some very tortuous meanders
	3	2.0			Coarse gravel & fine rubble; loose compaction	High (1-2m) primarily mud and clay		Similar to Reach 2	Much shallower; faster current; major curves
	4	16.0			Coarse rubble & some large boulders	Mud banks 1-2m high		Similar to Reaches 2 and 3	Relatively slack water major curves
	5	4.0			Sand and mud	High mud banks 2 - 3 m		Mostly Willow	Major curves and some tortuous meanders
	6	33			Mud and silt	Mud 1 - 3 m. high		Willow, some alder and spruce	Wide swamp plain where river meanders tortuously

PARSNIP REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Patsuk 18-6-75	1	2.2		5.0	Coarse & fine rubble; compaction moderate	Steep banks 1m high		Alder and spruce	Relatively straight with minor curves current fast
	1	in-def.	0.75	30.0	Coarse & fine gravels Sand mixed in at pools, compaction loose	Exposed gravel 0 - 2 m high		Cottonwood, alder and willow, spruce set back	Minor curves; pools well developed, gravel bars frequent
Scott 21-06	1	in-def.	1.0	10.0	Coarse & fine rubble with fine gravel in interstices; compaction moderately loose	High 1 - 3 m. Exposed gravel and sand		Cottonwood, poplar and alder along banks; large spruce set back	Straight with minor curves; slightly braided
Six Mile	1		1.5	5.0	Fine rubble (10-15cm) mixed with coarse gravel; compaction generally moderate	Mainly silt with some gravel washed onto them ave. .5; up to 1-1.5m high		Standing dead alder and spruce	Mainly one channel with smaller braids at mouth
	2	.2	1.0	15-20	Coarse & fine rubble; some boulders; compaction loose to moderate	Silty, not cut		Poplar and willow with deciduous shrubs; some alder and spruce	Few bends; not very braided
	3	1.3	1.0	5.0	Fine rubble (8-15cm); Compaction loose to moderate	--		Logged area; alder & some spruce left	Straight & minor curves; single channel
	4	0.6	--	5-10	Coarse & fine rubble; Some boulders Compaction loose	Exposed bedrock cliffs on both sides of stream		Unlogged mostly mature spruce forest, some alder	Minor curves

PARSNIP REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Six Mile	5	6.0	1.0	20-30	Coarse gravels; some smaller gravels Compaction loose	--		Alder and spruce along banks	River meanders; major curves
	6	1.0	0.5		Mostly mud	Mostly mud		Alder and willow	Very small stream 1-2 m wide, small bends
Strandberg 29-06	Site 1	?	1.5-2	30-40	Fine rubble with coarse gravel in riffles; fine gravel & sand in pools; compaction moderate in riffles loose in pools	Exposed gravel and sand from 0.5-1.5m high		Spruce forest to banks; alder and willow right along edge	Major curves; extensively braided
	2	?	1.5	20-40	Coarse & fine rubble in riffle areas; fine & coarse gravels in pools; compaction moderate in riffles, loose in pools	Exposed gravel 3-5m high		Mixed lodgepole pine & spruce on top of banks, willow and alder at stream level	Straight runs with minor bends
Table 23-10	1	in-def.			Fine gravel and sand; loose compaction	Exposed clay and gravel 1-2m high		Spruce forest with stands of cottonwood; alder frequent along edge	Major curves; deep at confluence
Tony 20-07	1	3.0	1.0		Fine rubble mixed with larger material; coarse gravel & some sand at bottom of pools; loose in moderate compaction	--		Alder and mosses on banks, spruce forest behind	Some good pools

PARSNIP REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Tony	2	1n-def.	1-1.5	40-50	Coarse gravel; loose compaction	Stable		Alder & mosses with spruce forest behind	Pools numerous and deep (up to 2m)
Tutu 15-06	1	300m?	1.0		Mainly coarse gravels mixed with silt; moderate compaction	Denuded & incised		--	Heavily braided; gravel & silt bars
	2	0.7	1.0	20	Fine rubble mixed with coarse gravel; moderate compaction	Stable but not high		Spruce forest to bank	A lot of logs and brush on stream
	3	1.0	2.0	5.0-10.0	Similar to Reach 2	Low		Alder and willow thickets	Steeper gradient & straighter runs
	4	1.7	2.0		Similar to Reach 3	Similar to Reach 3		Similar to Reach 3	Similar to Reach 3
Unnamed "B" 29-06	Site 3		1-1.5		Mud & silt with occasional fine gravel; compaction loose	Clay 0-1m high Some slumping		Alder predominate with occasional spruce	Major curves; current slow
Unnamed "C" 25-06	1	1n-def.		50	Fine gravel & sand; some silt in pools; compaction loose	Sloped with grass; slightly cut with exposed gravels		Choked with alder & small deciduous; a few spruce at top of ravine	Minor and major pools; slow moving
Weston 22-06	1	400m?		10-15	Fine gravels 2-3cm with some coarse gravels & rubble mixed in; compaction loose	Cut banks of exposed clay & silt often 1m high sometimes 3-4m high		No standing vegetation	Minor curves, few bars

PARSNIP REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Weston	2	0.3?			Fine gravel with some larger material; compaction loose	--		Fully timbered mature spruce	Minor curves; few bars; few well-defined pools
	3	1.5		30.0	Small material; fine & coarse gravels; compaction loose	Often cut; exposed silt & clay usually 1m high often 4-5m		Little vegetation; some alder & poplar	Meandering; bars infrequent; swift current
	4	indefinite	1-1.5	20	Coarse gravel with some fine rubble mixed in; compaction loose	Less eroded & cut		Alder and spruce	Major and minor curves; bars infrequent

APPENDIX 3

PHYSICAL DATA, FINLAY REACH BASIN, WILLISTON LAKE

FINLAY REACH BASIN STREAM DESCRIPTION

Tributary	Sample Date	Latitude	Longitude	N.T.S. Map-Sheet	Total Length (km)	Access. Length (km)	Potent. Spawn Length (km)	Width (meters)	Dis-charge (m ³ /sec.)	Average Gradient (s)	Temperature		Drainage Area (km ²)
											Air	Water	
Chunamon	Oct. 17/75	56° 14'	124° 21'	94C	7.8	4	.5	1		7	6	4	40.3
Chowika Creek	July 28	56° 44'	124° 45'	94C	39	39	16	12	29.2	1	12	7	510.1
Collins Creek	July 26	56° 27'	124° 22'	94C	26	26	10	7.5	2.2	2	14	9	140.3
Davis River	July 27	56° 33'	124° 28'	94C	39	39	.5	18	15.2	1	14	9	478.8
Factor Ross Cr	Oct. 17	56° 37'	124° 41'	94C	17.4	17.4	.2	5	0.97	3	7	4	172.6
Finlay River	Sept. 18	56° 59'	125° 01'	94C	278	100	50	50-70	--	0.2	9	7	16,900
Ingenika R.	Sept. 17	56° 45'	124° 59'	94C	119	119	60	40-50	--	0.5	11	7	5,491
Ivor Creek	July 30	56° 52'	124° 53'	94C	10.6	4	1	3.5	1.16	4.5	16	6	49.6
Lafferty Creek	July 25	56° 21'	124° 19'	94C	29	29	11	9	3.2	2	17	10	231.9
Meslinika R.	Sept. 18	56° 08'	124° 27'	94C	144.5	140	70	25	--	0.4	13	7	3285
Ospika River	Sept. 16	56° 20'	123° 57'	94C	111	111	26	17-30	--	0.5	10	7.5	2745
Police Creek	July 29	56° 45'	124° 45'	94C	11.5	11.5	1	4	.45	4	13	9.5	57.3
Teare Creek	Oct. 17/75	56° 17'	124° 26'	94C	5.7	2.5	0.3	3/4	--	10			18.2

FINLAY REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Chunamon Oct. 17	1	1			Very slow meandering stream - mud, sand	1-2m deep trench choked with fallen trees		Spruce, willow, alder	
	1	200				Up to 1m with dead, standing trees			
Chowika Cr. July 27/75	2	2		10	Large boulders interspersed with coarse & fine gravels; silt & sand in back eddies	Spruce forest; deep riffles; few bars; straight runs			
	3	7	2	5-10	Metamorphic bedrock & large boulders with interspersed gravel	Very steep slopes & rock cliffs; mature forest alder; few bars			
	4	8	1	10-20	Bars have med-small rubble & some gravel; riffle has large & medium rubble, some gravel	Gravel bars & rock cliffs - lower; upper - single channel meander lower grade			
Collins Cr. July 26	5	7	3/4	20	Bars with fine and coarse gravel and small rubble	0-1/2m high meander and braids		Spruce forest lodgepole	
	1	3-4	1	10-20	Mainly mud, sand with gravels higher up reach	Low .5m, meander, dense alder, willow dead falls			

FINLAY REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Davis R. July 27	1	1	1-1.5	10-15	Bars infrequent; large boulders with coarse & fine gravels few pools	Spruce forest, some alder, quite straight			
	2	1	1.5-2	10	Bedrock, some pools	Steep sided rock wall 75-100m high			Headwaters of N.E. trib. are in burned area, meanders, single channel, some swamp, further downstream there is a short boulder riffle area below which well gravelled
	3		1	107	Same as Reach 2	Sames as Reach 2			
Factor Ross Oct. 17/75	1	800	3	1/2 - 10	Mostly large & medium rubble, some boulders compact	About 1/2m high mossy spruce forest thick alder			At HML a waterfall 1 1/2-2m high probably prevents u/s migration
Finlay R.	1	3	0-5		Bars of fine gravels, some coarse; no rubble	3-4m high, mud or cobble		Spruce forest, poplar	
Ingenika R. Sept. 17/75	Site 1		0.5	20	Coarse & fine rubble some boulders, compacted in riffles	Steep, spruce and grass, 30-50m high; south bank gravel bar, poplar, willow			Confluence of Swannel River
	2		0.5	20	Coarse gravels, fine rubble sand uncompacted	N -steep, spruce S -flatter with poplar, spruce, pine			Confluence of Wrede Creek

FINLAY REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
(Swanney R.)					Round, fine, coarse rubble	Cut bank 4.5m - west			
					Large pool at confluence	Low, grasses, willow			
(Wrede Cr.)					Coarse gravel	Cutting new channel and braiding		Standing dead trees	Lake to HML
					Coarse gravel, small rubble & silt; mod.-loose compaction	1/2-1 1/3m high, spruce, alder and willows			Fast runs and riffles with few pools above R 2 - canyon
Ivor Cr. July 30	1	.5	3.5	5-10					
	2	4							
Lafferty July 25	1	2.2	1	10-20	In riffles - coarse gravel & rubble with frequent bars; fine loose gravel in pools	1/3-1m high, some cutbanks, poplar, alder, willow, spruce		Pine forest	
	2	0.8	1-2	0	Moderate to tightly compacted large rubble & coarse gravels	Cutbanks 3-4m high steep sides, poplar, alder		Spruce & pine	
	3	1 1/2	1/2-1						Similar to R-1 but some meanders and more pools
	4	6 1/2	1-5	30-50	Soft mud, occasional boulders	Often muddy, willows often killed by dammed water		Spruce, pine, poplar	

FINLAY REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Lafferty	5								Creek in deep valley, gentle slope, gravel, less beaver activity
Mesilinka Sept. 18/75	Site 1			10-20	Coarse rubble and boulders with abundant loose to mod. compacted gravels	1-1 1/2m high with spruce forest and some willows, rubble bars			Confluence with Gopher Hole Creek
	2		.5	10-20	Bars of fine to coarse rubbles; some coarse gravels	1.5m spruce, some willow			Confluence with Carina Lake outlet
Ospika Sept. 16/75	1	25	.5		Coarse gravel, fine and coarse rubble	1.5m steep cutbanks Also narrow canyon, some braided sections		Spruce	Turquoise color surveyed by air
	2	25	1		Coarse & fine flat-tish gravels, loose compaction	Braided & meandering, gravel bars & cutbanks		Drains a large burned area	Above canyon turbid water
(E. trib.)						As above			Water not turbid
Police Cr. July 29/75	1	.5	1		Coarse & fine gravel silty mud, algae on rocks	Dead timber, dead-fall sandy clay 1-1.5m high			To HML
	2	2.5	1	requent	Silty, scarce gravel, dead trees on bottom	Meandering slow; banks to 1.5m high; grass, moss, willow			

FINLAY REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Police Cr. July 29/75	3		1		Silty-sand to mud	Old beaver dams, backwaters			Generally unproductive
Teare Cr. Oct. 17/75	1	1			Mud, soft organic muck				Very small, drains a large beaver impoundment

APPENDIX 4

PHYSICAL DATA, PEACE REACH BASIN, WILLISTON LAKE

PEACE REACH BASIN STREAM DESCRIPTION

Tributary	Sample Date	Latitude	Longitude	M.T.S. Map-Sheet	Total Length (km)	Access Length (km)	Potent. Span Length (km)	Width (meters)	Drainage Area (km ²)	Dis-Charge (m ³ /sec.)	Average Gradient (%)	Temperature Air	Temperature Water
Adams Creek	05/08/75	56°10'N	122°36'W	948	12.0	5.0	0.5	4	58.6	0.85	7	12	5
Bernard Creek	02/08/75	56°03'N	123°21'W	948	20.0	1.5	0.3	10	106.5	5.05	3	13	7
Carbon Creek	08/08/75	55°59'N	122°41'W	930	46.0	46.0	23.0	28	814.5	9.20	1	17	9
Clearwater Cr.	10/08/75	55°54'N	123°09'W	930	49.5	42.0	21.0	19	635.4	12.8	1	13	8
Ducette Creek	10/08/75	55°56'N	123°08'W	930	22.0	16.0	4.0	10	189.5	N/A	2.5	12	9.5
Dunlevy Creek	05/08/75	56°10'N	122°22'W	948	15.0	4.5	3.0	6	169.4	1.31	3.2	16	13.5
Nabesche R.	03/08/75	56°07'N	123°10'W	948	50.2	10.0	4.0	24	815.6	14.69	1	14	10
Pardonet Creek	09/08/75	56°02'N	123°02'W	930	12.5	1.5	0.7	4.5	71.0	0.55	4	N/A	8.5
Point Creek	09/08/75	55°58'N	123°13'W	930	17.0	12.0	4.0	12.5	100.4	4.2	3	12	8
Schooler Creek	04/08/75	56°08'N	122°47'W	948	27.0	27.0	5.4	8	285.5	4.06	2	10	6.5
Selwyn Creek	11/08/75	56°01'N	123°32'W	930	18.5	3.0	0.3	10	163.7	5.2	3	14	7
Stott Creek	07/08/75	56°06'N	122°28'W	948	6.8	0	0	N/A	31.4	N/A	13.5	N/A	N/A
M. Nabesche R.	03/08/75	56°06'N	123°10'W	948	285.0	0	0	2.5	253.6	N/A	2	N/A	N/A
Wicked River	01/08/75	56°06'N	123°40'W	948	31.0	0.2	0.2	25	398.8	14.0	1.5	11	7
Unnamed Cr. A	07/08/75	56°07'N	122°37'W	948	6.8	0.8	0.1	3	26.6	0.14	11.5	14	N/A

PEACE REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Adams Creek (05/08/75)	1	.075	3	5	- small boulders - medium to large rubble - limestone encrustations - limited areas of loose gravel			- mature spruce (dead) - no plant growth below HML	
	2	2+	2.5 to 3.5		- medium to large rubble - limited loose gravel	- sloping		- mature white spruce, alder cottonwoods, equisetum	
Bernard Cr. (02/08/75)	1	.16	2.5		- boulders and large rubble with limited fines - limited areas of spawning gravel	- low with boulders and large rubble		- dead standing timber	- rough trail exists along streambank
	2	2+			- large boulders and small pools - limited areas of spawning gravel	- up to 1 metre - 2 km upstream banks steepen, cutting into bedrock		- willow, alder, birch on banks - spruce-fir forest	
Carbon Creek (08/08/75)	1	.80	1	30	- boulders and large rubble - limited areas of spawning gravel	- 2-2.5 m in height - boulders, large rubble, coarse gravels & sand		- generally unvegetated - a few dead standing trees	- abundant habitat for spawning and rearing
	2	3+	1	30	- large boulders and rubble - abundant spawning gravel, particularly in pools	- 1-1.5 m in height - some slumping		- alder and poplar on banks - spruce forest	- channel 50 m in width - abundant spawning and rearing habitat

PEACE REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Clearwater Creek (10/08/75)	1	1	0.5 to 1		- large to medium rubble and small boulders - abundant spawning gravels	- 2 m in height		- dead standing timber	- pools numerous
	2	4	0.5 to 1	30	- large to medium rubble and small boulders - abundant spawning gravel in pools	- often 70-80 m in height - prone to slump - bedrock exposed in areas		- willow and alder - spruce forest	- channel approx. 50 m. in width - well defined pools
	3	0.4			- abundant spawning gravel	- narrow canyon through bedrock - banks 20-25 m high	- 4m wide by 8m high restriction at head of canyon		- maximum depth 5m
	4	0.4		5 to 10	- continuous riffles with few pools - boulders with large to medium rubble	- 1-2 m in height		- spruce forest	- some backwater areas suitable for rearing
	5	24.3	0.5 to 1	30	- large and medium rubble in riffles and pools - coarse and fine gravels	- frequent exposed bars with rubble, gravel and sand		- alder, willow and poplar on banks - spruce forest	- valley flattens and broadens above Reach 4 - suitable for spawning and rearing
	6	7	.75	30	- small quantities of rubble - coarse and fine gravels	- low banks		- willows & shrubs on banks - spruce forest	- flows through large burned area

PEACE REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Ducette Cr. (10/08/75)	1	.5	1		- small boulders and large rubble with coarse gravels - algae on rocks	- steep sided		- poplars & grasses	- partially burnt bank areas
	2	7			- abundant spawning gravel	- some slumping			- gradient steepens and valley narrows in lower part of reach
	3	4.5			- spawning gravels present				- surveyed by air - gradient lower, river meandering
Dunlevy (05/08/75)	1	0.1	1 to 1.5		- 70% sand and gravel - 20% large rubble - 10% large boulders	- 1.75m in height		- unvegetated up to 1.75m - submerged cottonwood, aspen, spruce at mouth of creek	
	2	4+	1 to 1.5	30	- cobble and small to medium rubble - some bedrock exposed - abundant spawning gravels	- exposed areas of clay and gravel - 2-17m in height	- falls at km 4.5	- poplar, cottonwood, willow, alder & spruce	- upper creek winds through a shallow valley

PEACE REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Nabesch R. (03/08/75)	1	0.15	2 to 3	10	- large boulders and gravel - limited spawning gravel	- canyon with sheer rock cliff	- set of rapids from HML to slack water	- moss, willows and spruce on flatter sections	
	2	0.5	2 to 3		- boulders, large rubble - limited spawning gravel	- low banks		- spruce and cottonwood	
	3	3.2	1.5	25	- large boulder and rubble - extensive spawning gravel in pools	- low banks in lower reach with canyon area in upper reach		- spruce and some willow	- shallows suitable for rearing along banks
	4	6.3	1.5	15 to 20	- rubble and boulders	- exposed gravel bars & bedrock	- falls at upper end of reach	- spruce with some willow	- our observation - valley flattens above falls
Pardonet Cr.	1	0.01	4	10	- boulders and rubble with some cobble and gravel	- steep banks		- dead standing trees to HML	
	2		4 to 7	30	- boulders and rubble with scattered gravels	- numerous shale outcrops (unstable)		- spruce forest	

PEACE REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Point Creek (09/08/75)	1		2	20	- large rubble and small boulders with scattered gravels - algae on boulders	- sloping		- alder, willow, devils club, spruce and fir	- little rearing habitat, pools turbulent
	2	2.5	2.5	10	- large cobble, small boulders and scattered gravel - algae on boulders			- spruce and fir forest - alder, willow and devils club understory	- suitable spawning areas in lower end of reach
	3	10			- some spawning gravels available		- 3-5m fall on upper end of valley		- air observations - good pools - U-shaped valley, river meanders
	4								- air observation - drains steep, bald basins for fish
Schooler Cr. (04/08/75)	1	.25	2	10	- 50% cobble - 50% coarse and fine gravels - scattered spawning gravels - algal growth in shallows			- lower 3/4 unvegetated - alder and equisetum above	- suitable spawning and rearing areas

PEACE REACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Lgth. (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Schooler Cr. (04/08/75)	2				- primarily small boulders and large rubble - loose gravel in pools - greater number of	- .75m in height		- burned forest - willow, poplar and red-osier dogwood	- considerable rearing areas - limited spawning areas
Salween Cr. (11/08/75)	1		3.5 to 4		- large boulders and rubble - limited gravel			- dead trees on bank	- limited pool development
	2		3.5	5	- large rubble and boulders but primarily small boulders - small gravel deposits	- sloping and stable banks of boulders and report		- alders, willow, devil's club on banks - white spruce forest with some fir and cottonwood	- restricted spawning habitat - stream gradient decreases 10 km upstream - more gravel
Scott Creek (07/08/75)	1					- sandstone canyon 25-30 metres in height	- series of cat-racts, 2 meters or greater		- deep pool at foot of falls
W. Habsche River (03/08/75)	1					- inclined rock walls 2-30 metres high	- 2-3 metre wide by 50 metre long chute near river mouth - pools with 2 metre falls above chute		- river enters lake from large canyon

PEACE BEACH BASIN STREAM DESCRIPTION

Tributary	Reach	Total Length (km)	Slope (%)	Pools (%)	Bed Description	Bank Description	Barriers	Vegetation of Banks and Upland Areas	Comments
Wicked River (01/08/75)	1	.2	1		- predominantly large boulders and rubble with some coarse gravel and sand	- steep rock and boulders			- large number of pools
	2	.7				- canyon 3-10m wide and 13-20m deep	- 3 main falls with a total drop of 10m - impossible to fish		
	3	.7+	3.5	30	- boulders and large rubble with small patches of gravel - silt and algae on rocks	- smooth, round boulders		- moss, grass, alder, willow and birch on banks - spruce forests	- air observations - steep with boulders for 3.5 km, then meandering with gravel areas - steepens again in headwater area
Unnamed Creek "A" (07/08/75)	1		3	10 to 20	- boulders, large cobble and fine gravels	- .3 to .6 metres in height		- unvegetated - dead standing trees	- small winding creek with a great deal of fallen debris
	2	.5+	3.5	10 to 20	- primarily rubble & small boulders - small amounts of coarse and fine gravels - silt and organics in backwaters	- sloping to waters edge		- alder, moss, cottonwoods on bank - spruce forest	- less debris in creek than in Reach 1 - many logs fallen across stream

APPENDIX 5

FISHERIES DATA FOR
GAME AND NON-GAME FISH
SAMPLED FROM WILLISTON
LAKE TRIBUTARIES, 1975.

LEGEND FOR APPENDIX 5

- SPC - Species: MW = mountain whitefish
LW = lake whitefish
SS = slimy sculpin
LNS = longnose sucker
LSS = largescale sucker
NSF = northern squawfish
RBT = rainbow trout
DV = Dolly Varden
B = burbot
AG = Arctic grayling
LC = lake chub
PM = peamouth chub
RSS = redside shiner
- LEN - Length in mm
- WGT - Weight in gm
- S - Sex: (F = female M = male)
- M - Sexual maturity (see Appendix A)
- A - Age in years of completed growth
- AM - Aging method: (SC = scale OT = otolith)
- CP - Capture method: GN = gillnet
DN = dipnet
AN = angling
EX = explosive
FN = fyke net
- CC - Capture code: (00 = first capture)
- S - Stock (W = wild)

#	DATE	RIVER/LAKE	LOCATION	SPC	LEN	WGT	S	M	A	AM	CP	CC	TT	TN	S	COMMENTS
00001	06/09/75	ANZAC	REACH 1	MW				I			SN	00			W	
00002	06/09/75	ANZAC	REACH 1	MW				I			SN	00			W	
00003	09/11/75	ANZAC	REACH 2	MW	0310	0325	M	S	5	SC	GN	00			W	
00004	09/11/75	ANZAC	REACH 2	LW			M	R			GN	00			W	
00005	09/11/75	ANZAC	REACH 2	LW			M	R			GN	00			W	
00006	09/11/75	ANZAC	REACH 2	LW			M	R			GN	00			W	
00007	09/11/75	ANZAC	REACH 2	LW			M	R			GN	00			W	
00008	09/11/75	ANZAC	REACH 2	LW		0960	F	M			GN	00			W	
00009	09/11/75	ANZAC	REACH 2	LW		0550	F	R			GN	00			W	
00010	09/11/75	ANZAC	REACH 2	LW		0920	F	R			GN	00			W	
00011	09/11/75	ANZAC	REACH 2	MW			R	R			GN	00			W	
00012	09/11/75	ANZAC	REACH 2	MW			R	R			GN	00			W	
00013	09/11/75	ANZAC	REACH 2	MW			R	R			GN	00			W	
00013	09/11/75	ANZAC	REACH 2	MW			R	R			GN	00			W	
00014	09/11/75	ANZAC	REACH 2	MW			R	R			GN	00			W	
00015	09/11/75	ANZAC	REACH 2	MW			R	R			GN	00			W	
00016	09/11/75	ANZAC	REACH 2	MW			R	R			GN	00			W	
00017	09/11/75	ANZAC	REACH 2	MW			R	R			GN	00			W	
00018	09/11/75	ANZAC	REACH 2	MW			R	R			GN	00			W	
00019	09/11/75	ANZAC	REACH 2	MW			R	R			GN	00			W	
00020	26/06/75	BLACKWATER	SITE 1	AG	0354	0440	M	S	4		AN	00			W	
00021	26/06/75	BLACKWATER	SITE 1	SS	0022	0001		I			DN	00			W	
00022	26/06/75	BLACKWATER	SITE 1	SS	0023	0001		I			DN	00			W	
00023	26/06/75	BLACKWATER	SITE 1	RBT	0330	0440	M	R			AN	00			W	
00024	26/06/75	BLACKWATER	SITE 1	RBT	0340	0410	M	R			AN	00			W	
00025	26/06/75	BLACKWATER	SITE 1	RBT	0355	0370	M	R			AN	00			W	
00026	26/06/75	BLACKWATER	SITE 1	RBT	0389	0400	F	S	3		AN	00			W	
00027	26/06/75	BLACKWATER	SITE 1	RBT	0455	0650	M	R			AN	00			W	
00028	26/06/75	BLACKWATER	SITE 1								GN	00				22 HOUR SET; NO FISH
00029	25/06/75	BLKWTR TRB A	SITE 2	AG	0184	0077	F	D	2		GN	00			W	13 HOUR SET
00030	25/06/75	BLKWTR TRB A	SITE 2	DV	0183	0059	M	D	6		GN	00			W	13 HOUR SET
00031	25/06/75	BLKWTR TRB A	SITE 2	DV	0292	0260	F	M	6		GN	00			W	13 HOUR SET
00032	25/06/75	BLKWTR TRB A	SITE 2	LNS	0170	0052	M	M			GN	00			W	13 HOUR SET
00033	24/06/75	BLKWTR TRB A	SITE 2	MW	0150	0036	M	D	1		GN	00			W	13 HOUR SET
00034	25/06/75	BLKWTR TRB A	SITE 2	MW	0188	0078	M	D	2		GN	00			W	13 HOUR SET
00035	25/06/75	BLKWTR TRB A	SITE 2	MW	0190	0082	M	D	2		GN	00			W	13 HOUR SET
00036	25/06/75	BLKWTR TRB A	SITE 2	MW	0201	0095	M	M			GN	00			W	13 HOUR SET
00037	24/06/75	BLKWTR TRB A	SITE 2	MW	0205	0110	M	M	2		GN	00			W	13 HOUR SET
00038	25/06/75	BLKWTR TRB A	SITE 2	RBT	0155	0046	M	D	1		GN	00			W	13 HOUR SET
00039	25/06/75	BLKWTR TRB A	SITE 2	RBT	0408	0725	M	S	3		GN	00			W	13 HOUR SET
00040	25/06/75	BLKWTR TRB B	SITE 3	RBT	0366	0430	M	R	3		GN	00			W	17 HOUR SET
00041	26/06/75	BLKWTR TRB C	SITE 4	RBT	0391	0510	M	S	3		GN	00			W	17 HOUR SET
00042	30/06/75	CENTENNIAL	REACH 1	MW	0284	0240	M	D	4		GN	00			W	
00043	30/06/75	CENTENNIAL	REACH 1	RBT	0235	0125	M	R	2		GN	00			W	
00044	30/06/75	CENTENNIAL	REACH 1	RBT	0396	0660	M	R	3		GN	00			W	
00045	19/07/75	CUT THUMB	REACH 3	AG	0014	0001		I			DN	00			W	
00046	19/07/75	CUT THUMB	REACH 3	AG	0015	0001		I			DN	00			W	
00047	19/07/75	CUT THUMB	REACH 3	AG	0015	0001		I			DN	00			W	
00048	19/07/75	CUT THUMB	REACH 3	AG	0015	0001		I			DN	00			W	
00049	19/07/75	CUT THUMB	REACH 3	AG	0019	0001		I			DN	00			W	
00050	19/07/75	CUT THUMB	REACH 3	AG	0324	0340	F	S	3		AN	00			W	
00051	19/07/75	CUT THUMB	REACH 3	AG	0350	0380	F	S	5		AN	00			W	

#	DATE	RIVER/LAKE	LOCATION	SPC	LEN	WGT	S	M	A	AM	CP	CC	TT	TN	S	COMMENTS
00052	19/07/75	CUT THUMB	REACH 3	DV	0220	0096		I	4		AN	00			W	
00053	19/07/75	CUT THUMB	REACH 3	DV	0220						AN	00			W	
00054	19/07/75	CUT THUMB	REACH 3	DV	0316	0310	M		5		AN	00			W	
00055	19/07/75	CUT THUMB	REACH 3	MM	0260	0180	M	M	3		AN	00			W	
00056	19/07/75	CUT THUMB	REACH 3	RBT	0216	0105	M	M	2		AN	00			W	
00057	25/10/75	CUT THUMB	REACH 3	MM	0025			R			SN	00			W	
00058	28/06/75	EKLUND	SITE 1								GN					16 HOUR SET;NO FISH
00059	28/06/75	EKLUND	SITE 2								GN					16 HOUR SET;NO FISH
00060	04/09/75	ISAAC	REACH 1	AG	0325	0360	F	D	4		AN	00			W	
00061	04/09/75	ISAAC	REACH 1	SS	0017	0001		I			SN	00			W	
00062	04/09/75	ISAAC	REACH 1	SS	0036	0001		I			SN	00			W	
00063	04/09/75	ISAAC	REACH 1	MM	0053	0001		I			EX	00			W	
00064	04/09/75	ISAAC	REACH 1								GN					19 HOURS;NO FISH
00065	04/09/75	ISAAC	REACH 1								EX					NO FISH CAPTURED
00066	04/09/75	ISAAC	REACH 1								GN					20 HOURS;NO FISH
00067	10/09/75	LIGNITE	SITE 1	RBT	0027	0001		I			FN	00			W	20 HOUR SET
00068	10/09/75	LIGNITE	SITE 1	RBT	0028	0001		I			FN	00			W	20 HOUR SET
00069	10/09/75	LIGNITE	SITE 1	RBT	0032	0001		I			FN	00			W	20 HOUR SET
00070	10/09/75	LIGNITE	SITE 1	RBT	0034	0001		I			FN	00			W	20 HOUR SET
00071	10/09/75	LIGNITE	SITE 1	RBT	0036	0001		I			FN	00			W	20 HOUR SET
00072	10/09/75	LIGNITE	SITE 1	RBT	0190	0076		I	2		GN	00			W	20 HOUR SET
00073	10/09/75	LIGNITE	SITE 2	RBT	0048	0001		I			DN	00			W	
00074	10/09/75	LIGNITE	SITE 2	RBT	0140	0026		I	1		GN	00			W	
00075	08/11/75	McLEOD	SITE 3	MM	0215	0080	F	D	3		GN	00			W	17 HOUR SET
00076	08/11/75	McLEOD	SITE 3	MM	0230		M	R			GN	00			W	17 HOUR SET
00077	08/11/75	McLEOD	SITE 3	MM	0230	0100	F	S	3		GN	00			W	17 HOUR SET
00078	08/11/75	McLEOD	SITE 3	MM	0230		F	S			GN	00			W	17 HOUR SET
00079	08/11/75	McLEOD	SITE 3	MM	0235	0110	M	S	4		GN	00			W	17 HOUR SET
00080	08/11/75	McLEOD	SITE 3	MM	0250	0120	M	R	4		GN	00			W	17 HOUR SET
00081	08/11/75	McLEOD	SITE 3	MM	0270		M	R			GN	00			W	17 HOUR SET
00082	08/11/75	McLEOD	SITE 3	MM	0270	0180	M	R	4		GN	00			W	17 HOUR SET
00083	08/11/75	McLEOD	SITE 3	MM	0270		M	R			GN	00			W	17 HOUR SET
00084	08/11/75	McLEOD	SITE 3	MM	0315	0275	F	S	5		GN	00			W	17 HOUR SET
00085	08/11/75	McLEOD	SITE 3	RBT	0195	0060	F	D			GN	00			W	17 HOUR SET
00086	26/06/75	MANSON	STE 1 RCH 1	AG	0360	0440	M	M	4		AN	00			W	
00087	27/06/75	MANSON	STE 1 RCH 1	AG	0366	0470	M	S	4		GN	00			W	19 HOUR SET
00088	27/06/75	MANSON	STE 1 RCH 1	DV	0293	0230	M	D	6		GN	00			W	19 HOUR SET
00089	27/06/75	MANSON	STE 1 RCH 1	LNS	0282	0235	M	R			GN	00			W	19 HOUR SET
00090	27/06/75	MANSON	STE 1 RCH 1	LNS	0310	0450	F	R			GN	00			W	19 HOUR SET
00091	27/06/75	MANSON	STE 1 RCH 1	LNS	0329	0340	M	R			GN	00			W	19 HOUR SET
00092	26/06/75	MANSON	STE 1 RCH 1	LW	0022	0001		I			DN	00			W	
00093	26/06/75	MANSON	STE 1 RCH 1	LW	0025	0001		I			DN	00			W	
00094	26/06/75	MANSON	STE 1 RCH 1	LW	0026	0001		I			DN	00			W	
00095	26/06/75	MANSON	STE 1 RCH 1	LW	0026	0001		I			DN	00			W	
00096	26/06/75	MANSON	STE 1 RCH 1	LW	0027	0001		I			DN	00			W	
00097	26/06/75	MANSON	STE 1 RCH 1	LW	0028	0001		I			DN	00			W	
00098	27/06/75	MANSON	STE 1 RCH 1	RBT	0186	0079	M	D	2		GN	00			W	19 HOUR SET
00099	27/06/75	MANSON	STE 1 RCH 1	RBT	0368	0480	M	S	3		GN	00			W	19 HOUR SET
00100	20/09/75	MANSON	STE 2 RCH 1	LNS	0290	0270	M	S			GN	00			W	23 HOUR SET
00101	20/09/75	MANSON	STE 2 RCH 1	LNS	0310	0310	M				GN	00			W	23 HOUR SET
00102	20/09/75	MANSON	STE 2 RCH 1	RBT	0235	0150	M	D	2		GN	00			W	23 HOUR SET
00103	20/09/75	MANSON	STE 3 RCH4	DV	0310	0270	F	D			GN	00			W	18 HOUR SET

#	DATE	RIVER/LAKE	LOCATION	SPC	LEN	WGT	S	M	A	AM	CP	CC	TT	TN	S	COMMENTS
00104	20/09/75	MANSON	STE 3 RCH4	DV	0360	0380	F	D	7		GN	00			W	18 HOUR SET
00105	20/09/75	MANSON	STE 3 RCH4	LNS	0315	0310	F	D			GN	00			W	18 HOUR SET
00106	13/09/75	MISINCHINKA	REACH 1	DV	0400	0650	M	I	4		GN	00			W	24 HOUR SET
00107	13/09/75	MISINCHINKA	REACH 1	MW	0250	0160	M	R	4		GN	00			W	24 HOUR SET
00108	13/09/75	MISINCHINKA	REACH 2	LNS	0023	0001		I			DN	00			W	
00109	13/09/75	MISINCHINKA	REACH 2	LNS	0026	0001		I			DN	00			W	
00110	13/09/75	MISINCHINKA	REACH 2								GN	00				20 HOUR SET; NO FISH
00111	13/09/75	MISINCHINKA	REACH 3	DV	0245	0110	M	I	3		GN	00			W	14 HOUR SET
00112	13/09/75	MISINCHINKA	REACH 3	MW	0220	0100	M	R	4		GN	00			W	14 HOUR SET
00113	13/09/75	MISINCHINKA	REACH 3	MW	0245	0150	M	R	4		GN	00			W	14 HOUR SET
00114	13/09/75	MISINCHINKA	REACH 3	RBT	0235	0120	F	D	3		GN	00			W	14 HOUR SET
00115	20/07/75	MUGAHA	REACH 1	AG	0266	0210	F	D	3		GN	00			W	14 HOUR SET
00116	20/07/75	MUGAHA	REACH 1	AG	0308	0285	M	S			GN	00			W	14 HOUR SET
00117	26/10/75	MUGAHA	REACH 1	DV	0225	0080	F	D	5		GN	00			W	19 HOUR SET
00118	20/07/75	MUGAHA	REACH 1	DV	0349	0500	M	D	3		GN	00			W	14 HOUR SET
00119	20/07/75	MUGAHA	REACH 1	LSS	0259	0200	M	D			GN	00			W	14 HOUR SET
00120	20/07/75	MUGAHA	REACH 1	LSS	0275	0200	M	D			GN	00			W	14 HOUR SET
00121	20/07/75	MUGAHA	REACH 1	LSS	0286	0250	M	D			GN	00			W	14 HOUR SET
00122	20/07/75	MUGAHA	REACH 1	LSS	0286	0245	M	D			GN	00			W	14 HOUR SET
00123	13/06/75	MUGAHA	REACH 1	MW	0112	0013		I	1		SN	00			W	
00124	26/10/75	MUGAHA	REACH 1	MW	0235	0120	M	R	4		GN	00			W	19 HOUR SET
00125	26/10/75	MUGAHA	REACH 1	MW	0250	0150	F	S	5		GN	00			W	19 HOUR SET
00126	26/10/75	MUGAHA	REACH 1	MW	0255	0180	F	S			GN	00			W	19 HOUR SET
00127	26/10/75	MUGAHA	REACH 1	MW	0260	0150	M	S			GN	00			W	19 HOUR SET
00128	26/10/75	MUGAHA	REACH 1	MW	0270	0190	M	R	4		GN	00			W	19 HOUR SET
00129	26/10/75	MUGAHA	REACH 1	MW	0270	0180	M	R			GN	00			W	19 HOUR SET
00130	20/07/75	MUGAHA	REACH 1	MW	0271	0215	F	M			GN	00			W	14 HOUR SET
00131	26/10/75	MUGAHA	REACH 1	MW	0275	0200	F	S			GN	00			W	19 HOUR SET
00132	20/07/75	MUGAHA	REACH 1	RBT	0319	0360	F	S	3		GN	00			W	14 HOUR SET
00133	20/07/75	MUGAHA	REACH 1	NSF	0311	0305	M	M			GN	00			W	14 HOUR SET
00134	20/07/75	MUGAHA	REACH 2	MW	0029	0001		I			SN	00			W	
00135	20/07/75	MUGAHA	REACH 2								GN	00				17 HOUR SET; NO FISH
00136	16/09/75	MUGAHA	REACH 3								GN	00				23 HOUR SET; NO FISH
00137	11/09/75	NATION	SITE 1	AG	0295	0310	F	S	4		GN	00			W	15 HOUR SET
00138	11/09/75	NATION	SITE 1	AG	0330	0340	F	S	5		GN	00			W	15 HOUR SET
00139	11/09/75	NATION	SITE 1	LC	0022	0001		I			DN	00			W	
00140	11/09/75	NATION	SITE 1	LC	0025	0001		I			DN	00			W	
00141	11/09/75	NATION	SITE 1	MW	0280	0230	F	R	3		GN	00			W	15 HOUR SET
00142	11/09/75	NATION	SITE 1	MW	0295	0310	M	M			GN	00			W	15 HOUR SET
00143	11/09/75	NATION	SITE 1	MW	0300	0300	M	M	4		GN	00			W	15 HOUR SET
00144	11/09/75	NATION	SITE 1	MW	0300	0340	F	R	4		GN	00			W	15 HOUR SET
00145	11/09/75	NATION	SITE 1	MW	0305	0375	M	M	4		GN	00			W	15 HOUR SET
00146	11/09/75	NATION	SITE 1	MW	0305	0320	F	M	4		GN	00			W	15 HOUR SET
00147	11/09/75	NATION	SITE 1	MW	0305	0340	M	M	4		GN	00			W	15 HOUR SET
00148	11/09/75	NATION	SITE 1	MW	0305	0340	F	R			GN	00			W	15 HOUR SET
00149	11/09/75	NATION	SITE 1	MW	0315	0380	M	R	4		GN	00			W	15 HOUR SET
00150	11/09/75	NATION	SITE 1	MW	0320	0470	F	R	4		GN	00			W	15 HOUR SET
00151	11/09/75	NATION	SITE 1	RBT	0033	0001		I			DN	00			W	
00152	20/09/75	OMINECA	REACH 1	AG	0310	0310	F	D	4		GN	00			W	21 HOUR SET
00153	20/09/75	OMINECA	REACH 1	AG	0320	0310	F	D	4			00			W	
00154	20/09/75	OMINECA	REACH 1	AG	0325	0370	F	D	5			00			W	
00155	20/09/75	OMINECA	REACH 1	AG	0340	0410	M	D	4			00			W	

#	DATE	RIVER/LAKE	LOCATION	SPC	LEN	WGT	S	M	A	AM	CP	CC	TT	TN	S	COMMENTS
00156	20/09/75	OMINECA	REACH 1	AG	0345	0440	M	D	4			00			W	
00157	20/09/75	OMINECA	REACH 1	AG	0350	0470	F	D	5			00			W	
00158	20/09/75	OMINECA	REACH 1	AG	0350	0480	F	D				00			W	
00159	20/09/75	OMINECA	REACH 1	AG	0370	0450	F	D	4			00			W	
00160	20/09/75	OMINECA	REACH 1	DV	0555	1400	F	S	8			00			W	
00161	20/09/75	OMINECA	REACH 1	DV	0690	3000	M	S	7			00			W	
00162	20/09/75	OMINECA	REACH 1	MW	0285	0260	F	R	3			00			W	
00163	20/09/75	OMINECA	REACH 1	MW	0295	0320	F	R				00			W	
00164	20/09/75	OMINECA	REACH 1	MW	0300	0320	M	R	4			00			W	
00165	20/09/75	OMINECA	REACH 1	MW	0310	0320	M	R				00			W	
00166	20/09/75	OMINECA	REACH 1	MW	0310	0340	F	R	4			00			W	
00167	20/09/75	OMINECA	REACH 1	MW	0330	0425	M	R	4			00			W	
00168	20/09/75	OMINECA	REACH 1	MW	0340	0480	F	R	5			00			W	
00169	20/09/75	OMINECA	REACH 4	AG	0275	0200	M	D				00			W	
00170	20/09/75	OMINECA	REACH 4	DV	0510	1250	M	D	6			00			W	
00171	20/09/75	OMINECA	REACH 4	DV	0595	2250	F	S	6			00			W	
00172	20/09/75	OMINECA	REACH 4	MW	0250	0160	F	R	5			00			W	
00173	09/09/75	PACK	REACH 1	DV	0430	0675	F	D	5		GN	00			W	14 HOUR SET
00174	09/09/75	PACK	REACH 1	LNS	0265	0170		I			GN	00			W	14 HOUR SET
00175	09/09/75	PACK	REACH 1	LNS	0270	0160					GN	00			W	14 HOUR SET
00176	09/09/75	PACK	REACH 1	LNS	0275	0200		I			GN	00			W	14 HOUR SET
00177	09/09/75	PACK	REACH 1	LSS	0405	0710	F	S			GN	00			W	14 HOUR SET
00178	09/09/75	PACK	REACH 1	LW	0300	0300	M	M	3		GN	00			W	14 HOUR SET
00179	09/09/75	PACK	REACH 1	LW	0310	0425	M	M			GN	00			W	14 HOUR SET
00180	09/09/75	PACK	REACH 1	LW	0310	0380	F	M	3		GN	00			W	14 HOUR SET
00181	09/09/75	PACK	REACH 1	LW	0315	0410	M	M			GN	00			W	14 HOUR SET
00182	09/09/75	PACK	REACH 1	LW	0315	0380	M	M			GN	00			W	14 HOUR SET
00183	09/09/75	PACK	REACH 1	LW	0320	0400	M	M			GN	00			W	14 HOUR SET
00184	22/10/75	PACK	REACH 1	LW	0325	0390	M	R			GN	00			W	20 HOUR SET
00185	09/09/75	PACK	REACH 1	LW	0325	0425	M	M			GN	00			W	14 HOUR SET
00186	09/09/75	PACK	REACH 1	LW	0325	0400	M	M			GN	00			W	14 HOUR SET
00187	22/10/75	PACK	REACH 1	LW	0330	0420	M	R			GN	00			W	20 HOUR SET
00188	09/09/75	PACK	REACH 1	LW	0330	0440	M	M	3		GN	00			W	14 HOUR SET
00189	09/09/75	PACK	REACH 1	LW	0335	0480	M	M	3		GN	00			W	14 HOUR SET
00190	09/09/75	PACK	REACH 1	LW	0335	0460	M	M			GN	00			W	14 HOUR SET
00191	09/09/75	PACK	REACH 1	LW	0335	0460	M	M			GN	00			W	14 HOUR SET
00192	09/09/75	PACK	REACH 1	LW	0340	0525	M	M			GN	00			W	14 HOUR SET
00193	22/10/75	PACK	REACH 1	LW	0345	0540	M	M			GN	00			W	20 HOUR SET
00194	09/09/75	PACK	REACH 1	LW	0345	0550	M	M			GN	00			W	14 HOUR SET
00195	22/10/75	PACK	REACH 1	LW	0345	0460	M	R			GN	00			W	20 HOUR SET
00196	09/09/75	PACK	REACH 1	LW	0350	0480	M	M			GN	00			W	14 HOUR SET
00197	22/10/75	PACK	REACH 1	LW	0350	0510	F	R	3		GN	00			W	20 HOUR SET
00198	09/09/75	PACK	REACH 1	LW	0350	0540	M	M	3		GN	00			W	14 HOUR SET
00199	22/10/75	PACK	REACH 1	LW	0350	0560	M	M	3		GN	00			W	20 HOUR SET
00200	09/09/75	PACK	REACH 1	LW	0350	0490	F	M			GN	00			W	14 HOUR SET
00201	09/09/75	PACK	REACH 1	LW	0355	0550	M	M			GN	00			W	14 HOUR SET
00202	09/09/75	PACK	REACH 1	LW	0355	0540	M	M			GN	00			W	14 HOUR SET
00203	09/09/75	PACK	REACH 1	LW	0355	0550	M	M			GN	00			W	14 HOUR SET
00204	22/10/75	PACK	REACH 1	LW	0360	0540	F	R			GN	00			W	20 HOUR SET
00205	09/09/75	PACK	REACH 1	LW	0360	0590	M	M	3		GN	00			W	14 HOUR SET
00206	22/10/75	PACK	REACH 1	LW	0365	0590	M	M			GN	00			W	20 HOUR SET
00207	09/09/75	PACK	REACH 1	LW	0380	0660	F	M			GN	00			W	14 HOUR SET

#	DATE	RIVER/LAKE	LOCATION	SPC	LEN	WGT	S	M	A	AM	CP	CC	TT	TN	S	COMMENTS
00208	22/10/75	PACK	REACH 1	LW	0380	0755	F	R	3		GN	00			W	20 HOUR SET
00209	09/09/75	PACK	REACH 1	LW	0385	0680	M	M	3		GN	00			W	14 HOUR SET
00210	09/09/75	PACK	REACH 1	LW	0395	0880	F	M	3		GN	00			W	14 HOUR SET
00211	22/10/75	PACK	REACH 1	LW	0400	0880	F	R	3		GN	00			W	20 HOUR SET
00212	09/09/75	PACK	REACH 1	MW	0280	0280	M	M			GN	00			W	14 HOUR SET
00213	09/09/75	PACK	REACH 1	MW	0280	0225	F	R			GN	00			W	14 HOUR SET
00214	09/09/75	PACK	REACH 1	MW	0300	0310	M	M	5		GN	00			W	14 HOUR SET
00215	09/09/75	PACK	REACH 1	PM	0210	0085	M	M			GN	00			W	14 HOUR SET
00216	22/10/75	PACK	REACH 1	PM	0220	0110	M	M			GN	00			W	20 HOUR SET
00217	09/09/75	PACK	REACH 1	PM	0230	0100	F	M			GN	00			W	14 HOUR SET
00218	09/09/75	PACK	REACH 1	PM	0245	0160	F	M			GN	00			W	14 HOUR SET
00219	09/09/75	PACK	REACH 1	PM	0250	0140	F	M			GN	00			W	14 HOUR SET
00220	09/09/75	PACK	REACH 1	PM	0255	0180	F	M			GN	00			W	14 HOUR SET
00221	09/09/75	PACK	REACH 1	NSF							GN	00			W	14 HOUR SET; 6 FISH REL
00222	09/09/75	PACK	REACH 1	NSF	0245	0140		I			GN	00			W	14 HOUR SET
00223	09/09/75	PACK	REACH 1	NSF	0270	0180		I			GN	00			W	14 HOUR SET
00224	09/09/75	PACK	REACH 1	NSF	0320	0340					GN	00			W	14 HOUR SET
00225	09/09/75	PACK	REACH 1	NSF	0335	0440	M	M			GN	00			W	14 HOUR SET
00226	22/10/75	PACK	REACH 2	DV	0430	0690	F	D	5		GN	00			W	19 HOUR SET
00227	22/10/75	PACK	REACH 2	DV	0480	1200	F	D	6		GN	00			W	19 HOUR SET
00228	22/10/75	PACK	REACH 2	LW	0320	0390	M	M	3		GN	00			W	19 HOUR SET
00229	22/10/75	PACK	REACH 2	LW	0330	0400	M	M			GN	00			W	19 HOUR SET
00230	22/10/75	PACK	REACH 2	LW	0330	0420	F	R			GN	00			W	19 HOUR SET
00231	22/10/75	PACK	REACH 2	LW	0340	0450	F	R	3		GN	00			W	19 HOUR SET
00232	22/10/75	PACK	REACH 2	LW	0350	0475	M	M	3		GN	00			W	19 HOUR SET
00233	22/10/75	PACK	REACH 2	LW	0350	0500	M	R			GN	00			W	19 HOUR SET
00234	22/10/75	PACK	REACH 2	LW	0355	0575	F	R	3		GN	00			W	19 HOUR SET
00235	22/10/75	PACK	REACH 2	LW	0355	0550	F	R			GN	00			W	19 HOUR SET
00236	22/10/75	PACK	REACH 2	LW	0365	0625	M	M			GN	00			W	19 HOUR SET
00237	22/10/75	PACK	REACH 2	LW	0375	0680	F	R	3		GN	00			W	19 HOUR SET
00238	22/10/75	PACK	REACH 2	LW	0420	0980	F	M	4		GN	00			W	19 HOUR SET
00239	22/10/75	PACK	REACH 2	MW	0275	0220	M	R	4		GN	00			W	19 HOUR SET
00240	22/10/75	PACK	REACH 2	MW	0300	0250	F	S	5		GN	00			W	19 HOUR SET
00241	22/10/75	PACK	REACH 2	MW	0320	0440	F	R	4		GN	00			W	19 HOUR SET
00242	09/09/75	PACK	REACH 2	RBT											W	VISUAL OBSERVATION
00243	21/10/75	PACK	REACH 2	RBT	0345	0390	F	M	4		AN	00			W	
00244	21/10/75	PACK	REACH 2	RBT	0355	0470	F	M	3		AN	00			W	
00245	21/10/75	PACK	REACH 2	RBT	0360	0500	M	M	4		AN	00			W	
00246	21/10/75	PACK	REACH 2	RBT	0430	0910	M	D	4		AN	00			W	
00247	21/10/75	PACK	REACH 2	RBT	0440	0950	M	M	3		AN	00			W	
00248	09/09/75	PACK	REACH 2	NSF											W	VISUAL OBSERVATION
00249	08/11/75	PACK	REACH 4	LW	0240	0140	M	S	3		GN	00			W	16 HOUR SET
00250	08/11/75	PACK	REACH 4	LW	0260	0175	M	R	2		GN	00			W	16 HOUR SET
00251	08/11/75	PACK	REACH 4	LW	0270	0175	F	S	3		GN	00			W	16 HOUR SET
00252	08/11/75	PACK	REACH 4	MW	0270	0175	M	S	4		GN	00			W	16 HOUR SET
00253	08/11/75	PACK	REACH 5	LW	0260	0160	F	D	2		GN	00			W	22 HOUR SET
00254	08/11/75	PACK	REACH 5	LW	0260	0160	F	R			GN	00			W	22 HOUR SET
00255	08/11/75	PACK	REACH 5	LW	0270	0200	F	R	2		GN	00			W	22 HOUR SET
00256	08/11/75	PACK	REACH 5	LW	0290	0230	M	R			GN	00			W	22 HOUR SET
00257	08/11/75	PACK	REACH 5	LW	0290	0240	M	R			GN	00			W	22 HOUR SET
00258	08/11/75	PACK	REACH 5	MW			F	S			GN	00			W	22 HOUR SET
00259	08/11/75	PACK	REACH 5	MW			F	S			GN	00			W	22 HOUR SET

#	DATE	RIVER/LAKE	LOCATION	SPC	LEN	WGT	S	H	A	AM	CP	CC	TT	TN	S	COMMENTS
00260	08/11/75	PACK	REACH 5	MM			F	R			GN	00			W	22 HOUR SET
00261	08/11/75	PACK	REACH 5	MM	0240	0170	M	R			GN	00			W	22 HOUR SET
00262	08/11/75	PACK	REACH 5	MM	0250	0180	M	R		4	GN	00			W	22 HOUR SET
00263	08/11/75	PACK	REACH 5	MM	0260	0180	F	R			GN	00			W	22 HOUR SET
00264	08/11/75	PACK	REACH 5	MM	0270	0260	F	R			GN	00			W	22 HOUR SET
00265	08/11/75	PACK	REACH 5	MM	0275	0230	M	R		5	GN	00			W	22 HOUR SET
00266	08/11/75	PACK	REACH 5	MM	0300	0295	F	R			GN	00			W	22 HOUR SET
00267	08/11/75	PACK	REACH 5	MM	0320	0340	M	S		4	GN	00			W	22 HOUR SET
00268	08/11/75	PACK	REACH 5	RBT	0275	0210	M	M		2	GN	00			W	22 HOUR SET
00269	08/11/75	PACK	REACH 5	RBT	0275	0210	M	M			GN	00			W	22 HOUR SET
00270	08/11/75	PACK	REACH 5	RBT	0310	0345	F	M		2	GN	00			W	22 HOUR SET
00271	07/09/75	PARSNIP	RCH 1 STE 1	MM	0060	0002					SN	00			W	
00272	07/09/75	PARSNIP	RCH 1 STE 1	MM	0064	0003				0	SN	00			W	
00273	07/09/75	PARSNIP	RCH 1 STE 1								SN	00			W	NO FISH
00274	13/09/75	PARSNIP	RCH 1 STE 2	DV	0710	3200	M	R		6	AN	00			W	
00275	13/11/75	PARSNIP	RCH 1 STE 2								GN	00			W	24 HOUR SET;NO FISH
00276	22/10/75	PARSNIP	RCH 1 STE 3								GN	00			W	25 HOUR SET;NO FISH
00277	07/09/75	PARSNIP	RCH 1 STE 4	AG	0105	0013		I			SN	00			W	
00278	07/09/75	PARSNIP	RCH 1 STE 4	AG	0121	0021		I			SN	00			W	
00279	07/09/75	PARSNIP	RCH 1 STE 4	SS	0027	0002		I			SN	00			W	
00280	07/09/75	PARSNIP	RCH 1 STE 4	LNS							SN	00			W	5 RELEASED
00281	07/09/75	PARSNIP	RCH 1 STE 4	LNS	0330	0370	F	S			SN	00			W	
00282	07/09/75	PARSNIP	RCH 1 STE 4	LSS							SN	00			W	11 RELEASED
00283	07/09/75	PARSNIP	RCH 1 STE 4	LSS	0305	0250	M	S			SN	00			W	
00284	07/09/75	PARSNIP	RCH 1 STE 4	LSS	0405	0680	F	S			SN	00			W	
00285	07/09/75	PARSNIP	RCH 1 STE 4	MM							SN	00			W	9 RELEASED
00286	07/09/75	PARSNIP	RCH 1 STE 4	MM	0038	0001		I			SN	00			W	
00287	07/09/75	PARSNIP	RCH 1 STE 4	MM	0039	0001		I			SN	00			W	
00288	07/09/75	PARSNIP	RCH 1 STE 4	MM	0041	0001		I			SN	00			W	
00289	07/09/75	PARSNIP	RCH 1 STE 4	MM	0043	0001		I			SN	00			W	
00290	07/09/75	PARSNIP	RCH 1 STE 4	MM	0043	0001		I			SN	00			W	
00291	07/09/75	PARSNIP	RCH 1 STE 4	MM	0049	0001		I			SN	00			W	
00292	07/09/75	PARSNIP	RCH 1 STE 4	MM	0052	0001		I			SN	00			W	
00293	07/09/75	PARSNIP	RCH 1 STE 4	MM	0061	0002		I		0	SN	00			W	
00294	07/09/75	PARSNIP	RCH 1 STE 4	MM	0108	0012		I		1	SN	00			W	
00295	07/09/75	PARSNIP	RCH 1 STE 4	MM	0111	0015		I		1	SN	00			W	
00296	07/09/75	PARSNIP	RCH 1 STE 4	MM	0115	0017		I		1	SN	00			W	
00297	07/09/75	PARSNIP	RCH 1 STE 4	MM	0117	0019		I		1	SN	00			W	
00298	07/09/75	PARSNIP	RCH 1 STE 5								GN	00			W	17 HOUR SET;NO FISH
00299	07/09/75	PARSNIP	RCH 1 STE 6	DV	0365	0390	M	D		4	GN	00			W	16 HOUR SET
00300	07/09/75	PARSNIP	RCH 1 STE 6	LNS	0020	0001		I			GN	00			W	17 HOUR SET
00301	07/09/75	PARSNIP	RCH 1 STE 6	LNS	0285	0200		I			GN	00			W	16 HOUR SET
00302	06/09/75	PARSNIP	RCH 1 STE 6	MM							SN	00			W	25 RELEASED
00303	06/09/75	PARSNIP	RCH 1 STE 6	MM	0055	0012		I			SN	00			W	
00304	06/09/75	PARSNIP	RCH 1 STE 6	MM	0184	0055		I			SN	00			W	
00305	06/09/75	PARSNIP	RCH 1 STE 6	MM	0202	0083	F	D		3	SN	00			W	
00306	06/09/75	PARSNIP	RCH 1 STE 6	MM	0210	0095	F	D			SN	00			W	
00307	06/09/75	PARSNIP	RCH 1 STE 6	MM	0230	0125					SN	00			W	
00308	06/09/75	PARSNIP	RCH 1 STE 6	MM	0230						SN	00			W	
00309	06/09/75	PARSNIP	RCH 1 STE 6	MM	0240						SN	00			W	
00310	06/09/75	PARSNIP	RCH 1 STE 6	MM	0240						SN	00			W	
00311	06/09/75	PARSNIP	RCH 1 STE 6	MM	0240						SN	00			W	

#	DATE	RIVER/LAKE	LOCATION	SPC	LEN	WGT	S	M	A	AM	CP	CC	TT	TN	S	COMMENTS
00312	06/09/75	PARSNIP	RCH 1 STE 6	MH	0250	0150	F	R	4		SN	00			W	
00313	06/09/75	PARSNIP	RCH 1 STE 6	MH	0260						SN	00			W	
00314	07/09/75	PARSNIP	RCH 1 STE 6	MH	0265	0210	F	R	5		GN	00			W	16 HOUR SET
00315	06/09/75	PARSNIP	RCH 1 STE 6	MH	0265						SN	00			W	
00316	06/09/75	PARSNIP	RCH 1 STE 6	MH	0265						SN	00			W	
00317	06/09/75	PARSNIP	RCH 1 STE 6	MH	0270						SN	00			W	
00318	06/09/75	PARSNIP	RCH 1 STE 6	MH	0285	0250	F	R	5		SN	00			W	
00319	06/09/75	PARSNIP	RCH 1 STE 6	MH	0285						SN	00			W	
00320	06/09/75	PARSNIP	RCH 1 STE 6	MH	0330						SN	00			W	
00321	07/09/75	PARSNIP	RCH 1 STE 6	NSF	0270	0200	M	D			GN	00			W	16 HOUR SET
00322	07/09/75	PARSNIP	RCH 1 STE 6	NSF	0275	0210	M	D			GN	00			W	16 HOUR SET
00323	06/09/75	PARSNIP	RCH 1 STE 7	AG							SN	00			W	6 RELEASED
00324	06/09/75	PARSNIP	RCH 1 STE 7	AG	0045	0001					SN	00			W	
00325	06/09/75	PARSNIP	RCH 1 STE 7	AG	0049	0001					SN	00			W	
00326	06/09/75	PARSNIP	RCH 1 STE 7	AG	0052	0001					SN	00			W	
00327	06/09/75	PARSNIP	RCH 1 STE 7	AG	0054	0001			1		SN	00			W	
00328	06/09/75	PARSNIP	RCH 1 STE 7	MH							SN	00			W	5 RELEASED
00329	06/09/75	PARSNIP	RCH 1 STE 7	MH	0040	0001					SN	00			W	
00330	06/09/75	PARSNIP	RCH 1 STE 7	MH	0055	0001					SN	00			W	
00331	06/09/75	PARSNIP	RCH 1 STE 7	MH	0056	0001					SN	00			W	
00332	06/09/75	PARSNIP	RCH 1 STE 7	MH	0058	0001			1		SN	00			W	
00333	06/09/75	PARSNIP	RCH 1 STE 7	MH	0059	0001					SN	00			W	
00334	06/09/75	PARSNIP	RCH 1 STE 7	MH	0100	0007					SN	00			W	
00335	06/09/75	PARSNIP	RCH 1 STE 7	MH	0112	0011			1		SN	00			W	
00336	06/09/75	PARSNIP	RCH 1 STE 7	MH	0123	0015			1		SN	00			W	
00337	06/09/75	PARSNIP	RCH 1 STE 7	MH	0126	0016			1		SN	00			W	
00338	06/09/75	PARSNIP	RCH 1 STE 7	MH	0133	0019					SN	00			W	
00339	06/09/75	PARSNIP	RCH 1 STE 7	MH	0183	0058			2		SN	00			W	
00340	06/09/75	PARSNIP	RCH 1 STE 7	MH	0273	0120	F	D	4		SN	00			W	
00341	24/10/75	PARSNIP	RCH 1 STE 8	AG							SN	00			W	1 RELEASED
00342	24/10/75	PARSNIP	RCH 1 STE 8	MH			M	R			SN	00			W	7 RELEASED
00343	24/10/75	PARSNIP	RCH 1 STE 8	MH							SN	00			W	1 RELEASED
00344	24/10/75	PARSNIP	RCH 1 STE 8	MH			F	R			SN	00			W	1 RELEASED
00345	24/10/75	PARSNIP	RCH 1 STE 8													
00346	24/10/75	PARSNIP	RCH 2 STE 9	LH	0375	0680	M	R	3		GN	00			W	21 HOUR SET
00347	24/10/75	PARSNIP	RCH 3 STE 10	MH							SN	00			W	10 RELEASED
00348	24/10/75	PARSNIP	RCH 3 STE 10	MH	0250	0155	F	R	4		SN	00			W	
00349	11/11/75	PARSNIP	RCH 4 STE 11	AG	0255	0160	M	D	3		GN	00			W	20 HOUR SET
00350	11/11/75	PARSNIP	RCH 4 STE 11	AG	0310	0275	M	M	4		GN	00			W	20 HOUR SET
00351	11/11/75	PARSNIP	RCH 4 STE 11	AG	0320	0300	M	M	4		GN	00			W	20 HOUR SET
00352	11/11/75	PARSNIP	RCH 4 STE 11	LNS	0285	0240					GN	00			W	20 HOUR SET
00353	11/11/75	PARSNIP	RCH 4 STE 11	LNS	0295	0240					GN	00			W	20 HOUR SET
00354	11/11/75	PARSNIP	RCH 4 STE 11	MH	0260	0190	F	S	5		GN	00			W	20 HOUR SET
00355	11/11/75	PARSNIP	RCH 4 STE 11	MH	0280	0210	F	S			GN	00			W	20 HOUR SET
00356	11/11/75	PARSNIP	RCH 4 STE 11	MH	0285	0210	F	D	4		GN	00			W	20 HOUR SET
00357	11/11/75	PARSNIP	RCH 4 STE 11	MH	0290	0205	F	S			GN	00			W	20 HOUR SET
00358	11/11/75	PARSNIP	RCH 4 STE 11	MH	0300	0230	F	S			GN	00			W	20 HOUR SET
00359	11/11/75	PARSNIP	RCH 4 STE 11	MH	0320	0360	M	S	4		GN	00			W	20 HOUR SET
00360	24/10/75	PARSNIP	RCH 4 STE 12	DV	0270	0170	F	D	5		SN	00			W	
00361	24/10/75	PARSNIP	RCH 4 STE 12	LNS							SN	00			W	32 RELEASED
00362	24/10/75	PARSNIP	RCH 4 STE 12	LSS							SN	00			W	11 RELEASED
00363	24/10/75	PARSNIP	RCH 4 STE 12	LH	0370	0520	M	R			SN	00			W	

#	DATE	RIVER/LAKE	LOCATION	SPC	LEN	WGT	S	H	A	AM	CP	CC	TT	TN	S	COMMENTS
00364	11/11/75	PARSNIP	RCH 5 STE 13	DV	0350	0340	F	D	5		GN	00			W	21 HOUR SET
00365	11/11/75	PARSNIP	RCH 5 STE 13	DV	0350	0410	M	I			GN	00			W	21 HOUR SET
00366	11/11/75	PARSNIP	RCH 5 STE 13	DV	0380	0495	M	D			GN	00			W	21 HOUR SET
00367	11/11/75	PARSNIP	RCH 5 STE 13	DV	0380	0500	M	D	6		GN	00			W	21 HOUR SET
00368	11/11/75	PARSNIP	RCH 5 STE 13	DV	0380	0550	F	D	5		GN	00			W	21 HOUR SET
00369	11/11/75	PARSNIP	RCH 5 STE 13	LSS	0260	0200	M	D			GN	.0			W	21 HOUR SET
00370	11/11/75	PARSNIP	RCH 5 STE 13	LH	0400	0860	M	R	4		GN	00			W	21 HOUR SET
00371	11/11/75	PARSNIP	RCH 5 STE 13	LH	0405	0850	M	R	4		GN	00			W	21 HOUR SET
00372	11/11/75	PARSNIP	RCH 5 STE 13	MH	0260	0175	F	S	4		GN	00			W	21 HOUR SET
00373	11/11/75	PARSNIP	RCH 5 STE 13	MH	0280	0220	F	R	4		GN	00			W	21 HOUR SET
00374	11/11/75	PARSNIP	RCH 5 STE 13	MH	0290	0210	M	S			GN	00			W	21 HOUR SET
00375	11/11/75	PARSNIP	RCH 5 STE 13	MH	0300	0220	M	S			GN	00			W	21 HOUR SET
00376	11/11/75	PARSNIP	RCH 5 STE 13	MH	0330	0340	F	S	6		GN	00			W	21 HOUR SET
00377	11/11/75	PARSNIP	RCH 6 STE 14	LNS	0205	0090		I			GN	00			W	21 HOUR SET
00378	11/11/75	PARSNIP	RCH 6 STE 14	MH	0215	0095	M	D	4		GN	00			W	21 HOUR SET
00379	11/11/75	PARSNIP	RCH 6 STE 14	MH	0220	0100	M	S	3		GN	00			W	21 HOUR SET
00380	11/11/75	PARSNIP	RCH 6 STE 14	MH	0220	0100	M	S			GN	00			W	21 HOUR SET
00381	11/11/75	PARSNIP	RCH 6 STE 14	MH	0305	0240	F	S	5		GN	00			W	21 HOUR SET
00382	11/11/75	PARSNIP	RCH 6 STE 14	RBT	0260	0200	F	M	2		GN	00			W	21 HOUR SET
00383	18/06/75	PATSUK	REACH 2	AG	0300	0280	F	M	4		GN	00			W	15 HOUR SET
00384	18/06/75	PATSUK	REACH 2	AG	0309	0310	F	S	3		GN	00			W	15 HOUR SET
00385	18/06/75	PATSUK	REACH 2	AG	0347	0530	F	R	4		GN	00			W	15 HOUR SET
00386	18/06/75	PATSUK	REACH 2	AG	0356	0440	F	S	3		GN	00			W	15 HOUR SET
00387	18/06/75	PATSUK	REACH 2	AG	0360	0460	M	R	4		GN	00			W	15 HOUR SET
00388	18/06/75	PATSUK	REACH 2	AG	0363	0560	F	R	5		GN	00			W	15 HOUR SET
00389	18/06/75	PATSUK	REACH 2	MH	0283	0190	F	M	3		GN	00			W	15 HOUR SET
00390	08/09/75	PATSUK	REACH 2								FN					69 HOUR SET;NO FISH
00391	20/06/75	PATSUK	RCH5 LWEREND								EX					NO FISH
00392	08/09/75	PATSUK	RCH5 UPPEEND	RBT	0022	0001		I			FN	00			W	69 HOUR SET
00393	08/09/75	PATSUK	RCH5 UPPEEND	RBT	0022	0001		I			FN	00			W	69 HOUR SET
00394	08/09/75	PATSUK	RCH5 UPPEEND	RBT	0024	0001		I			FN	00			W	69 HOUR SET
00395	08/09/75	PATSUK	RCH5 UPPEEND	RBT	0024	0001		I			FN	00			W	69 HOUR SET
00396	20/06/75	PATSUK	REACH 6	SS	0067	0003					DN	00			W	
00397	20/06/75	PATSUK	REACH 6	RBT	0140	0033					EX	00			W	
00398	05/09/75	PATSUK	REACH 6	RBT	0196	0080	F	M	2		AN	00			W	
00399	20/06/75	PATSUK	REACH 6	RBT	0409	0560	F	S	4		EX	00			W	
00400	07/09/75	REYNOLDS	REACH 1	AG	0046	0001		I			FN	00			W	16 HOUR SET
00401	07/09/75	REYNOLDS	REACH 1	AG	0047	0001		I			FN	00			W	16 HOUR SET
00402	07/09/75	REYNOLDS	REACH 1	LNS	0255	0140					GN	00			W	16 HOUR SET
00403	07/09/75	REYNOLDS	REACH 1	MH	0185	0058		I			GN	00			W	16 HOUR SET
00404	07/09/75	REYNOLDS	REACH 1								GN					16 HOUR SET;NO FISH
00405	29/06/75	STRANDBERG	SITE 1	AG	0319	0390	M	S	3		GN	00			W	18 HOUR SET
00406	29/06/75	STRANDBERG	SITE 1	AG	0370	0520	M	S	4		GN	00			W	18 HOUR SET
00407	29/06/75	STRANDBERG	SITE 1	DV	0575	2250	M	M	6		GN	00			W	18 HOUR SET
00408	29/06/75	STRANDBERG	SITE 1	LNS	0271	0210	M	R			GN	00			W	18 HOUR SET
00409	29/06/75	STRANDBERG	SITE 1	LNS	0285	0220	M	R			GN	00			W	18 HOUR SET
00410	29/06/75	STRANDBERG	SITE 1	LNS	0294	0320	M	R			GN	00			W	18 HOUR SET
00411	29/06/75	STRANDBERG	SITE 1	LNS	0295	0275	M	R			GN	00			W	18 HOUR SET
00412	29/06/75	STRANDBERG	SITE 1	LNS	0296	0250	M	R			GN	00			W	18 HOUR SET
00413	29/06/75	STRANDBERG	SITE 1	LNS	0309	0270	M	R			GN	00			W	18 HOUR SET
00414	29/06/75	STRANDBERG	SITE 1	LNS	0309	0260	M	R			GN	00			W	18 HOUR SET
00415	29/06/75	STRANDBERG	SITE 1	LNS	0313	0280	M	R			GN	00			W	18 HOUR SET

#	DATE	RIVER/LAKE	LOCATION	SPC	LEN	WGT	S	M	A	AM	CP	CC	TT	TN	S	COMMENTS
00416	29/06/75	STRANDBERG	SITE 1	LNS	0332	0360	M	R			GN	00			W	18 HOUR SET
00417	29/06/75	STRANDBERG	SITE 1	RBT	0345	0365	F	S	3		GN	00			W	18 HOUR SET
00418	29/06/75	STRANDBERG	SITE 1								GN				W	18 HOUR SET;NO FISH
00419	29/06/75	STRANDBERG	SITE 2	RBT	0150										W	VISUAL OBSERVATION
00420	29/06/75	STRANDBERG	SITE 2	RBT	0500										W	VISUAL OBSERVATION
00421	29/06/75	STRANDBERG	SITE 2	AG											W	VISUAL OBSERVATION
00422	24/10/75	TABLE	REACH 1								GN				W	15 HOUR SET;NO FISH
00423	20/07/75	TONY	SITE 1	MW	0040	0001		I			DN	00			W	
00424	20/07/75	TONY	SITE 1	MW	0052	0001		I			DN	00			W	
00425	20/07/75	TONY	SITE 1	RSS	0077	0005					DN	00			W	
00426	20/07/75	TONY	SITE 1	RSS	0085	0007					DN	00			W	
00427	20/07/75	TONY	SITE 1	RSS	0100	0011	F	R			DN	00			W	
00428	20/07/75	TONY	SITE 1	RSS	0119	0018	M	R			DN	00			W	
00429	19/06/75	TONY	REACH 1	MW	0253	0160	M	M	2		EX	00			W	
00430	19/06/75	TONY	REACH 1	MW	0267	0190	F	M			EX	00			W	
00431	19/06/75	TONY	REACH 1	MW	0279	0200	F	M			EX	00			W	
00432	19/06/75	TONY	REACH 1	MW	0288	0220	F	M	3		EX	00			W	
00433	19/06/75	TONY	REACH 2	AG	0322	0350	M	R	4		GN	00			W	17 HOUR SET
00434	19/06/75	TONY	REACH 2	RBT	0358	0400	F	R			GN	00			W	17 HOUR SET
00435	16/06/75	TUTU	AT MOUTH	AG	0358	0450	D	4			GN	00			W	24 HOUR SET
00436	16/06/75	TUTU	AT MOUTH	DV	0437	0717	D	4			GN	00			W	24 HOUR SET
00437	16/06/75	TUTU	AT MOUTH	LNS	0278	0234	M				GN	00			W	24 HOUR SET
00438	16/06/75	TUTU	AT MOUTH	LSS	0272	0222	D				GN	00			W	24 HOUR SET
00439	16/06/75	TUTU	AT MOUTH	MW	0280	0211	D	3			GN	00			W	24 HOUR SET
00440	16/06/75	TUTU	AT MOUTH	PM	0253	0193	R				GN	00			W	24 HOUR SET
00441	16/06/75	TUTU	AT MOUTH	RBT	0372	0493	M	3			GN	00			W	24 HOUR SET
00442	16/06/75	TUTU	AT MOUTH	NSF	0311	0297	M	3			GN	00			W	24 HOUR SET
00443	21/07/75	TUTU	REACH 1	LNS	0016	0020	I					00			W	
00444	21/07/75	TUTU	REACH 1	LNS	0016	0020	I					00			W	
00445	21/07/75	TUTU	REACH 1	LNS	0017	0030	I					00			W	
00446	21/07/75	TUTU	REACH 1	LNS	0017	0030	I					00			W	
00447	15/06/75	TUTU	REACH 1	MW	0019	0040	I					00			W	
00448	15/06/75	TUTU	REACH 1	MW	0019	0050	I					00			W	
00449	15/06/75	TUTU	REACH 1	MW	0020	0050	I					00			W	
00450	15/06/75	TUTU	REACH 1	MW	0020	0050	I					00			W	
00451	16/06/75	TUTU	REACH 2	AG	0328	0440	F	R	4		GN	00			W	24 HOUR SET
00452	16/06/75	TUTU	REACH 2	MW	0360	0170	M	D	3		GN	00			W	24 HOUR SET
00453	16/06/75	TUTU	REACH 2	RBT	0358	0450	M	R	3		GN	00			W	24 HOUR SET
00454	18/06/75	TUTU	REACH 3								GN	00			W	14 HOUR SET
00455	29/06/75	UNNAMED 'B'	SITE 3	DV	0047	0010	I				EX	00			W	
00456	29/06/75	UNNAMED 'B'	SITE 3	RBT	0077	0054	I				EX	00			W	
00457	25/06/75	UNNAMED 'C'	SITE 1	RBT	0373	0450	F	R	3		DN	00			W	
00458	22/06/75	WESTON	REACH 3	AG	0331	0365	F	S	4		GN	00			W	11 HOUR SET
00459	22/06/75	WESTON	REACH 3	AG	0335	0385	F	S	4		GN	00			W	11 HOUR SET
00460	22/06/75	WESTON	REACH 3	AG	0348	0410	F	S	4		GN	00			W	11 HOUR SET
00461	22/06/75	WESTON	REACH 3	AG	0368	0470	F	R	4		GN	00			W	11 HOUR SET
00462	22/06/75	WESTON	REACH 3	LNS	0321	0300	M	R			GN	00			W	11 HOUR SET
00463	22/06/75	WESTON	REACH 3	MW	0240	0115	M	D	3		GN	00			W	11 HOUR SET
00464	22/06/75	WESTON	REACH 4	MW	0298	0230	M	M	3		GN	00			W	16 HOUR SET
00465	22/06/75	WESTON	REACH 4	RBT	0387	0460	M	S	3		AN	00			W	
00466	26/10/75	WESTON	REACH 3								GN				W	17 HOUR SET;NO FISH
00467	16/09/75	WESTON	REACH 4								GN				W	20 HOUR SET;NO FISH

#	DATE	RIVER/LAKE	LOCATION	SPC	LEN	WGT	S	M	A	AM	CP	CC	TT	TN	S	COMMENTS
00500	27/07/75	CHOWIKA	REACH 1	AG	0348	0430					AN	00			W	
00501	27/07/75	CHOWIKA	REACH 1	AG	0368	0510						00			W	
00502	27/07/75	CHOWIKA	REACH 1	DV	0535	1600						00			W	
00503	27/07/75	CHOWIKA	REACH 1	DV	0545	1800						00			W	
00504	27/07/75	CHOWIKA	REACH 1	DV	0550	1900						00			W	
00505	27/07/75	CHOWIKA	REACH 1	DV	0565	1800	M	M	3			00			W	
00506	27/07/75	CHOWIKA	REACH 1	DV	0565	1900						00			W	
00507	27/07/75	CHOWIKA	REACH 1	DV	0570	2000						00			W	
00508	27/07/75	CHOWIKA	REACH 1	DV	0580	2200						00			W	
00509	27/07/75	CHOWIKA	REACH 1	DV	0590	2400						00			W	
00510	28/07/75	CHOWIKA	REACH 1	DV	0600	2000						00			W	
00511	27/07/75	CHOWIKA	REACH 1	DV	0600	2200						00			W	
00512	28/07/75	CHOWIKA	REACH 1	DV	0620	2400						00			W	
00513	28/07/75	CHOWIKA	REACH 1	DV	0665	3200						00			W	
00514	28/07/75	CHOWIKA	REACH 3	AG	0340	0370	M	S	3		AN	00			W	
00515	28/07/75	CHOWIKA	REACH 3	AG	0350	0410	M	S	5			00			W	
00516	28/07/75	CHOWIKA	REACH 3	DV		1500						00			W	
00517	28/07/75	CHOWIKA	REACH 3	DV		0500						00			W	
00518	28/07/75	CHOWIKA	REACH 3	DV		1500						00			W	
00519	28/07/75	CHOWIKA	REACH 3	DV	0540	1500						00			W	
00520	28/07/75	CHOWIKA	REACH 3	DV	0540	1600						00			W	
00521	28/07/75	CHOWIKA	REACH 3	DV	0545	1500						00			W	
00522	28/07/75	CHOWIKA	REACH 3	DV	0560	2000						00			W	
00523	28/07/75	CHOWIKA	REACH 3	DV	0570	1800						00			W	
00524	28/07/75	CHOWIKA	REACH 3	DV	0610	2600						00			W	
00525	28/07/75	CHOWIKA	REACH 3	DV	0655	2900						00			W	
00526	28/07/75	CHOWIKA	REACH 3	DV	0670	3400						00			W	
00527	28/07/75	CHOWIKA	REACH 3	DV	0680	3500						00			W	
00528	18/09/75	CHOWIKA	REACH 4	MH	0036	0004		I			DN	00			W	
00529	18/09/75	CHOWIKA	REACH 4	MH	0037	0005		I				00			W	
00530	18/09/75	CHOWIKA	REACH 4	MH	0040	0006		I				00			W	
00531	18/09/75	CHOWIKA	REACH 4	MH	0043	0006		I				00			W	
00532	18/09/75	CHOWIKA	REACH 4	MH	0043	0007		I				00			W	
00533	18/09/75	CHOWIKA	REACH 4	MH	0044	0008		I				00			W	
00534	18/09/75	CHOWIKA	REACH 4	MH	0045	0009		I				00			W	
00535	18/09/75	CHOWIKA	REACH 4	MH	0045	0009		I				00			W	
00536	18/09/75	CHOWIKA	REACH 4	MH	0048	0010		I				00			W	
00537	18/09/75	CHOWIKA	REACH 4	RBT	0405	0680	F	D	4		GN	00			W	18 HOUR SET
00538	18/09/75	CHOWIKA	REACH 5								GN	00			W	18 HOUR SET; NO FISH
00539	26/07/75	COLLINS	REACH 1	AG	0320	0350	F	S			EX	00			W	
00540	26/07/75	COLLINS	REACH 1	AG	0339	0440	F	D			EX	00			W	
00541	26/07/75	COLLINS	REACH 1	AG	0410	0335	F	S	4		AN	00			W	
00542	26/07/75	COLLINS	REACH 1	AG	0450	0355	M	D	3		AN	00			W	
00543	26/07/75	COLLINS	REACH 1	AG	0450	0348	F	S	4		AN	00			W	
00544	26/07/75	COLLINS	REACH 1	DV	0566	2020	F	M	4		EX	00			W	
00545	26/07/75	COLLINS	REACH 1	DV	0590	2240	F	M	5		EX	00			W	
00546	26/07/75	COLLINS	REACH 1	LNS							EX	00			W	
00547	26/07/75	COLLINS	REACH 1	LNS	0306	0290	M	S			EX	00			W	
00548	26/07/75	COLLINS	REACH 1	LNS	0313	0275	M	S			EX	00			W	
00549	26/07/75	COLLINS	REACH 1	LNS	0320	0305	F	R			EX	00			W	
00550	26/07/75	COLLINS	REACH 1	LNS	0322	0320	F	S			EX	00			W	
00551	26/07/75	COLLINS	REACH 1	LNS	0322	0290	M	S			EX	00			W	

#	DATE	RIVER/LAKE	LOCATION	SPC	LEN	WGT	S	M	A	AM	CP	CC	TT	TN	S	COMMENTS
00552	26/07/75	COLLINS	REACH 1	LNS	0350	0330	F	R			EX	00			W	
00553	26/07/75	COLLINS	REACH 1	LNS	0350	0410	F	R			EX	00			W	
00554	26/07/75	COLLINS	REACH 1	LNS	0353	0405	F	S			EX	00			W	
00555	26/07/75	COLLINS	REACH 1	LNS	0380	0245	F	R			EX	00			W	
00556	26/07/75	COLLINS	REACH 1	LNS	0380	0330	F	R			EX	00			W	
00557	26/07/75	COLLINS	REACH 1	LNS	0415	0300	F	R			EX	00			W	
00558	26/07/75	COLLINS	REACH 1	LNS	0455	0380	F	R			EX	00			W	
00559	27/07/75	DAVIS	REACH 1	AG							AN	00			W	99 LNS RELEASED
00560	27/07/75	DAVIS	REACH 1	B	0160	0015			2		AN	00			W	
00561	27/07/75	DAVIS	REACH 1	DV	0375	0470	H	I	5		AN	00			W	
00562	27/07/75	DAVIS	REACH 1	DV	0475						AN	00			W	
00563	27/07/75	DAVIS	REACH 1	DV	0500						AN	00			W	
00564	27/07/75	DAVIS	REACH 1	DV	0540						AN	00			W	
00565	27/07/75	DAVIS	REACH 1	DV	0585						AN	00			W	
00566	27/07/75	DAVIS	REACH 1	DV	0590						AN	00			W	
00567	27/07/75	DAVIS	REACH 1	DV	0660						AN	00			W	
00568	27/07/75	DAVIS	REACH 1	LNS	0290	0250	M	R			GN	00			W	14 HOUR SET
00569	27/07/75	DAVIS	REACH 1	MW	0287	0240	M	D			GN	00			W	14 HOUR SET
00570	27/07/75	DAVIS	REACH 3	AG	0325		F				AN	00			W	
00571	27/07/75	DAVIS	REACH 3	AG	0348	0460	M	S	4		AN	00			W	
00572	27/07/75	DAVIS	REACH 3	AG	0368	0460	M	S	4		AN	00			W	
00573	27/07/75	DAVIS	REACH 3	DV	0450						AN	00			W	
00574	27/07/75	DAVIS	REACH 3	DV	0500						AN	00			W	
00575	27/07/75	DAVIS	REACH 3	DV	0510						AN	00			W	
00576	27/07/75	DAVIS	REACH 3	DV	0520						AN	00			W	
00577	27/07/75	DAVIS	REACH 3	DV	0600						AN	00			W	
00578	27/07/75	DAVIS	REACH 3	DV	0630						AN	00			W	
00579	18/10/75	FACTOR ROSS	REACH 1								GN	00			W	16 HOUR SET;NO FISH
00580	18/09/75	FINLAY	REACH 1	DV	0420	0620	F	D	5		GN	00			W	15 HOUR SET
00581	18/09/75	FINLAY	REACH 1	DV	0530	1390	M	S			GN	00			W	15 HOUR SET
00582	18/09/75	FINLAY	REACH 1	DV	0615	2600	F	S	7		GN	00			W	15 HOUR SET
00583	18/09/75	FINLAY	REACH 1	DV	0670	2800	M	S	4		GN	00			W	15 HOUR SET
00584	18/09/75	INGENIKA	REACH 1	AG	0330	0430	F	D	4		GN	00			W	18 HOUR SET
00586	18/09/75	INGENIKA	REACH 1	AG	0335	0400	F	D	4		GN	00			W	18 HOUR SET
00587	18/09/75	INGENIKA	REACH 1	DV							AN	00			W	
00588	18/09/75	INGENIKA	REACH 1	DV	0480	1050	F	D	5		GN	00			W	18 HOUR SET
00589	18/09/75	INGENIKA	REACH 1	LW	0440	1090	F	M	4		GN	00			W	18 HOUR SET
00590	18/09/75	INGENIKA	REACH 2	MW	0260	0200	F	D	4		GN	00			W	18 HOUR SET
00591	18/09/75	INGENIKA	REACH 2	MW	0260	0200	M	R	4		GN	00			W	18 HOUR SET
00592	30/07/75	IVOR	REACH 1								AN				W	NO FISH CAPTURED
00593	30/07/75	IVOR	REACH 2								AN				W	NO FISH CAPTURED
00594	30/07/75	IVOR	REACH 2								EX				W	NO FISH CAPTURED
00595	30/07/75	IVOR	REACH 2								GN				W	14 HOUR SET;NO FISH
00596	25/07/75	LAFFERTY	REACH 1	AG	0337	0410	M	S	4		AN	00			W	
00597	25/07/75	LAFFERTY	REACH 1	AG	0340	0420	F	S	4		EX	00			W	
00598	25/07/75	LAFFERTY	REACH 1	AG	0346	0450	M	S	3		AN	00			W	
00599	25/07/75	LAFFERTY	REACH 1	AG	0350	0500	F	S	3		EX	00			W	
00600	25/07/75	LAFFERTY	REACH 1	AG	0353	0415	F	S	4		AN	00			W	
00601	25/07/75	LAFFERTY	REACH 1	DV	0438	0810	M	I	5		AN	00			W	
00602	25/07/75	LAFFERTY	REACH 1	LNS							EX	00			W	
00603	25/07/75	LAFFERTY	REACH 1	LNS	0265	0200	M	R			EX	00			W	
00604	25/07/75	LAFFERTY	REACH 1	LNS	0270	0200	M	S			EX	00			W	

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00605	25/07/75	LAFFERTY	REACH 1	LNS	0280						EX	00			W	
00606	25/07/75	LAFFERTY	REACH 1	LNS	0280						EX	00			W	
00607	25/07/75	LAFFERTY	REACH 1	LNS	0280						EX	00			W	
00608	25/07/75	LAFFERTY	REACH 1	LNS	0280						EX	00			W	
00609	25/07/75	LAFFERTY	REACH 1	LNS	0285						EX	00			W	
00610	25/07/75	LAFFERTY	REACH 1	LNS	0285						EX	00			W	
00611	25/07/75	LAFFERTY	REACH 1	LNS	0285						EX	00			W	
00612	25/07/75	LAFFERTY	REACH 1	LNS	0289	0250	F	S			DN	00			W	
00613	25/07/75	LAFFERTY	REACH 1	LNS	0290						EX	00			W	
00614	25/07/75	LAFFERTY	REACH 1	LNS	0290						EX	00			W	
00615	25/07/75	LAFFERTY	REACH 1	LNS	0291	0270	F	R			DN	00			W	
00616	25/07/75	LAFFERTY	REACH 1	LNS	0300						EX	00			W	
00617	25/07/75	LAFFERTY	REACH 1	LNS	0300						EX	00			W	
00618	25/07/75	LAFFERTY	REACH 1	LNS	0305						EX	00			W	
00619	25/07/75	LAFFERTY	REACH 1	LNS	0310						EX	00			W	
00620	25/07/75	LAFFERTY	REACH 1	LNS	0320						EX	00			W	
00621	25/07/75	LAFFERTY	REACH 1	LNS	0320						EX	00			W	
00622	25/07/75	LAFFERTY	REACH 1	LNS	0320						EX	00			W	
00623	25/07/75	LAFFERTY	REACH 1	LNS	0325						EX	00			W	
00624	25/07/75	LAFFERTY	REACH 1	LNS	0325						EX	00			W	
00625	25/07/75	LAFFERTY	REACH 1	LNS	0335						EX	00			W	
00626	25/07/75	LAFFERTY	REACH 1	LNS	0340						EX	00			W	
00627	25/07/75	LAFFERTY	REACH 1	LNS	0440	0340	F	S			EX	00			W	15 RELEASED
00628	25/07/75	LAFFERTY	REACH 1	LSS	0325	0360	M	S			EX	00			W	
00629	25/07/75	LAFFERTY	REACH 1	LSS	0490	0350	F	S			EX	00			W	
00630	25/07/75	LAFFERTY	REACH 1	RBT	0209	0110	M	I		2	AN	00			W	
00631	19/09/75	LAFFERTY	REACH 4	AG	0315	0320	F	D		4	GN	00			W	22 HOUR SET
00632	19/09/75	LAFFERTY	REACH 4	AG	0360	0450	M	D		5	GN	00			W	22 HOUR SET
00633	19/09/75	LAFFERTY	REACH 4	AG	0370	0450	M	D		4	GN	00			W	22 HOUR SET
00634	19/09/75	LAFFERTY	REACH 4	AG	0375	0520	M	D		3	GN	00			W	22 HOUR SET
00635	19/09/75	LAFFERTY	REACH 4	DV	0570	1700	F	S			GN	00			W	22 HOUR SET
00636	19/09/75	LAFFERTY	REACH 4	DV	0600	2200	F	S		5	GN	00			W	22 HOUR SET
00637	19/09/75	LAFFERTY	REACH 4	MH	0265	0160	F	R		4	GN	00			W	22 HOUR SET
00638	19/09/75	LAFFERTY	REACH 4	RBT	0026	0001		I			DN	00			W	
00639	19/09/75	MESILINKA	REACH 1								GN	00			W	24 HOUR SET;NO FISH
00640	18/09/75	MESILINKA	REACH 2	AG	0345	0400	M	D		4	AN	00			W	
00641	19/09/75	MESILINKA	REACH 2								GN	00			W	24 HOUR SET;NO FISH
00642	17/09/75	OSPIKA	REACH 1	AG	0292	0300	F	D		4	GN	00			W	25 HOUR SET
00643	17/09/75	OSPIKA	REACH 1	AG	0305	0380	M	D		4	GN	00			W	25 HOUR SET
00644	17/09/75	OSPIKA	REACH 1	DV	0546	1200	F	S		5	GN	00			W	25 HOUR SET
00645	17/09/75	OSPIKA	REACH 1	MH	0318	0320	M	M		4	GN	00			W	25 HOUR SET
00646	17/09/75	OSPIKA	REACH 1	MH	0337	0350	F	R		4	GN	00			W	25 HOUR SET
00647	17/09/75	OSPIKA	REACH 1	DV	0345	0475	M	R		3	GN	00			W	23 HOUR SET
00648	17/09/75	OSPIKA	REACH 2	MH	0285	0240	M	M		5	GN	00			W	23 HOUR SET
00649	29/07/75	POLICE	REACH 1								AN					NO FISH CAPTURED
00650	29/07/75	POLICE	REACH 2								AN					NO FISH CAPTURED
00651	29/07/75	POLICE	REACH 3								EX					NO FISH CAPTURED
00652	05/08/75	ADAMS	REACH 1													NO FISH CAPTURED
00653	05/08/75	ADAMS	REACH 2													NO FISH CAPTURED
00654	02/08/75	BERNARD	REACH 1	AG	0340	0410	F	D		04	SC	AN	00		W	
00655	02/08/75	BERNARD	REACH 1	AG	0347	0410	F	S		04	SC	AN	00		W	
00656	02/08/75	BERNARD	REACH 1	AG	0370	0380					SC	AN	00		W	

#	DATE	RIVER/LAKE	LOCATION	SPC	LEN	WGT	S	M	A	AM	CP	CC	TT	TN	S	COMMENTS
00657	02/08/75	BERNARD	REACH 1	AG	0385	0570	M	S	04	SC	AN	00				
00658	02/08/75	BERNARD	REACH 1	DV	0348	0350	F	D	05	SC	AN	00				W
00659	02/08/75	BERNARD	REACH 1	DV	0355	0400	F	D	06	SC	AN	00				W
00660	02/08/75	BERNARD	REACH 1	DV	0370						AN	00				W
00661	02/08/75	BERNARD	REACH 1	MW												
00662	02/08/75	BERNARD	REACH 2	AG	0330	0390					AN	00				W
00663	02/08/75	BERNARD	REACH 2	AG	0360	0470					AN	00				W
00664	02/08/75	BERNARD	REACH 2	MW	0318	0360	F	M	03	SC	AN	00				W
00665	08/08/75	CARBON	REACH 1	AG	0015	0000		I			DN	00				W
00666	08/08/75	CARBON	REACH 1	AG	0016	0000		I			DN	00				W
00667	08/08/75	CARBON	REACH 1	AG	0016	0000		I			DN	00				W
00668	08/08/75	CARBON	REACH 1	AG	0016	0000		I			DN	00				W
00669	08/08/75	CARBON	REACH 1	AG	0016	0000		I			DN	00				W
00670	08/08/75	CARBON	REACH 1	AG	0017	0000		I			DN	00				W
00671	08/08/75	CARBON	REACH 1	AG	0017	0000		I			DN	00				W
00672	08/08/75	CARBON	REACH 1	AG	0018	0000		I			DN	00				W
00673	08/08/75	CARBON	REACH 1	AG	0021	0001		I			DN	00				W
00674	08/08/75	CARBON	REACH 1	LNS				S			SN	00				W
00675	08/08/75	CARBON	REACH 2	AG							EX					W
00676	08/08/75	CARBON	REACH 2	AG	0330	0420					AN	00				W
00677	08/08/75	CARBON	REACH 2	AG	0330	0320	F		05	SC	AN	00				W
00678	08/08/75	CARBON	REACH 2	AG	0350	0450					AN	00				W
00679	08/08/75	CARBON	REACH 2	AG	0350	0400					AN	00				W
00680	08/08/75	CARBON	REACH 2	AG	0355	0420	M		04	SC	AN	00				W
00681	08/08/75	CARBON	REACH 2	AG	0355	0450			05	SC	AN	00				W
00682	08/08/75	CARBON	REACH 2	AG	0360	0450	M		04	SC	AN	00				W
00683	08/08/75	CARBON	REACH 2	AG	0365	0500			03	SC	AN	00				W
00684	08/08/75	CARBON	REACH 2	AG	0370	0500					AN	00				W
00685	08/08/75	CARBON	REACH 2	MW												W
00686	08/08/75	CARBON	REACH 2	MW	0320	0350			04	SC	AN	00				W
00687	10/08/75	CLEARWATER	REACH 1													W
00688	10/08/75	CLEARWATER	REACH 2													W
00689	10/08/75	CLEARWATER	REACH 3	AG	0330	0380					AN	00				W
00690	10/08/75	CLEARWATER	REACH 3	AG	0350	0415			04	SC	AN	00				W
00691	10/08/75	CLEARWATER	REACH 3	AG	0370	0480			04	SC	AN	00				W
00692	10/08/75	CLEARWATER	REACH 3	DV	0575	2000					AN	00				W
00693	10/08/75	CLEARWATER	REACH 3	LNS	0350	0400	M	S			AN	00				W
00694	10/08/75	CLEARWATER	REACH 3	MW												W
00695	10/08/75	CLEARWATER	REACH 4	RBT	0310	0310	F	D	02	SC	AN	00				W
00696	10/08/75	CLEARWATER	REACH 4	RBT	0385	0660	F	D	03	SC	AN	00				W
00697	10/08/75	CLEARWATER	REACH 4	RBT	0405	0730			03	SC	AN	00				W
00698	10/08/75	CLEARWATER	REACH 4	AG												W
00699	16/08/75	CLEARWATER	REACH 5								GN					W
00700	16/08/75	CLEARWATER	REACH 6								GN					W
00701	05/08/75	DUCETTE	REACH 1	DV	0375	0500					AN	00				W
00702	05/08/75	DUCETTE	REACH 1	AG												W
00703	05/08/75	DUNLEVY	REACH 2	MW	0125	0018	I	01			EX	00				W
00704	05/08/75	DUNLEVY	REACH 2	MW	0130	0019	I	01			EX	00				W
00705	05/08/75	DUNLEVY	REACH 2	MW	0185	0065	I	02			EX	00				W
00706	05/08/75	DUNLEVY	REACH 2	MW	0190	0066	I	02			EX	00				W
00707	05/08/75	DUNLEVY	REACH 2	MW	0195	0077	I	02			EX	00				W
00708	05/08/75	DUNLEVY	REACH 2	MW	0200	0083	I	02			EX	00				W

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00709	05/08/75	DUNLEVY	REACH 2	MH	0205	0083		I	02		EX	00			W	
00710	05/08/75	DUNLEVY	REACH 2	RBT	0110	0015		I	01		EX	00			W	
00711	05/08/75	DUNLEVY	REACH 2	RBT	0140	0029		I			AN	00			W	
00712	05/08/75	DUNLEVY	REACH 2	RBT	0165	0060	M	M	01		EX	00			W	
00713	05/08/75	DUNLEVY	REACH 2	RBT	0195	0084	M	D	01		EX	00			W	
00714	05/08/75	DUNLEVY	REACH 2	RSS	0110	0017	F	R			EX	00			W	
00715	03/08/75	NABESCHE	REACH 1	AG	0345	0490	M	D	05	SC	AN	00			W	
00716	03/08/75	NABESCHE	REACH 1	DV	0310	0290	F	D	05	OT	AN	00			W	
00717	03/08/75	NABESCHE	REACH 1	DV	0365	0410	F	D	03	OT	AN	00			W	
00718	03/08/75	NABESCHE	REACH 1	DV	0505	1100		M			AN	00			W	
00719	03/08/75	NABESCHE	REACH 1	RBT	0250	0160	F	I	02	SC	AN	00			W	
00720	03/08/75	NABESCHE	REACH 2													NO FISH CAPTURED
00721	03/08/75	NABESCHE	REACH 3	AG	0350	0420	F	S	04	SC	AN	00			W	
00722	03/08/75	NABESCHE	REACH 3	AG	0350	0400	F	S	04	SC	AN	00			W	
00723	03/08/75	NABESCHE	REACH 3	AG	0400	0660	M	S	04	SC	AN	00			W	
00724	03/08/75	NABESCHE	REACH 3	DV	0460	0410		I	04	OT	AN	00			W	
00725	03/08/75	NABESCHE	REACH 3	MH	0016			I			DN	00			W	
00726	03/08/75	NABESCHE	REACH 3	MH	0016	0		I			DN	00			W	
00727	17/09/75	NABESCHE	REACH 4	AG	0337	0540	F	D	04	SC	GN	00			W	
00728	17/09/75	NABESCHE	REACH 4	AG	0343	0520	F	D	04	SC	GN	00			W	
00729	17/09/75	NABESCHE	REACH 4	DV	0368	0440	F	D	06	OT	GN	00			W	
00730	17/09/75	NABESCHE	REACH 4	DV	0673	3290	F	R	05	OT	GN	00			W	
00731	17/09/75	NABESCHE	REACH 4	DV	0394	0560	F	D	05	OT	GN	00			W	
00732	09/08/75	PARDONET	REACH 2								EX					NO FISH CAPTURED
00733	09/08/75	PARDONET	REACH 2	AG	0360	0470	M	S	04	SC	AN	00			W	
00734	09/08/75	PARDONET	REACH 2	AG	0370	0540	M	S	04	SC	AN	00			W	
00735	09/08/75	PARDONET	REACH 2	SS	0034			I			DN	00			W	
00736	09/08/75	PARDONET	REACH 2	SS	0036			I			DN	00			W	
00737	09/08/75	PARDONET	REACH 2	DV	0330	0300	M	I			AN	00			W	
00738	09/08/75	POINT	REACH 1	AG											W	VISUAL OBSERVATION
00739	09/08/75	POINT	REACH 2	AG	0375	0550	M	S	04	SC	AN	00			W	
00740	04/08/75	SCHOOLER	REACH 2	AG	0345	0420	F	S	04	SC	AN				W	
00741	04/08/75	SCHOOLER	REACH 2	AG	0370	0530	M	S	05	SC	AN				W	
00742	04/08/75	SCHOOLER	REACH 2	DV											W	VISUAL OBSERVATION
00743	04/08/75	SCHOOLER	REACH 2	RBT	0410	0580	M	R	03	SC	AN				W	
00744	04/08/75	SCHOOLER	REACH 2	RBT	0425	0460	F	S	03	SC	AN				W	
00745	11/08/75	SELWYN	REACH 1	AG	0365	0500	M	S	04	SC	AN				W	
00746	11/08/75	SELWYN	REACH 1	DV	0515	1450					AN				W	
00747	11/08/75	SELWYN	REACH 2	AG	0335	0400	F	D	04	SC	AN				W	
00748	11/08/75	SELWYN	REACH 2	AG	0360	0530	M				AN				W	
00749	11/08/75	SELWYN	REACH 2	AG	0370	0460	M		04	SC	AN				W	
00750	07/08/75	STOTT	REACH 1	AG							AN				W	
00751	07/08/75	STOTT	REACH 1	RBT	0365	0410					AN				W	
00752	07/08/75	STOTT	REACH 1	RBT	0410	0560					AN				W	
00753	07/08/75	STOTT	REACH 1	RBT	0465	0750	F	S	04	SC	AN				W	
00754	01/08/75	WICKED	REACH 1	AG	0330	0385					AN				W	
00755	01/08/75	WICKED	REACH 1	AG	0360	0480	F	S	05	SC	AN				W	
00756	01/08/75	WICKED	REACH 1	AG	0368	0550					AN				W	
00757	01/08/75	WICKED	REACH 1	AG	0375						AN				W	
00758	01/08/75	WICKED	REACH 1	AG	0380	0610	M	S	04	SC	AN				W	
00759	01/08/75	WICKED	REACH 1	DV	0630	1600	F	M	06	OT	AN				W	
00760	01/08/75	WICKED	REACH 1	MH	0310	0280	M	M	04	SC	AN				W	
00761	01/08/75	WICKED	REACH 3	DV	0240	0280					AN				W	
00762	01/08/75	WICKED	REACH 3	DV	0255	0270	F	M	05	OT	AN				W	
00763	01/08/75	WICKED	REACH 3	DV	0290						AN				W	
00764	01/08/75	WICKED	REACH 3	DV	0295	0300	M	M	05	OT	AN				W	
00765	01/08/75	WICKED	REACH 3	DV	0330	0410					AN				W	
00766	07/08/75	UNNAMED A	REACH 1	AG	0350	0440			04	SC	AN				W	
00767	07/08/75	UNNAMED A	REACH 2								EX					NO FISH CAPTURED

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- 1985 85 Big Qualicum River Steelhead Fishery Investigations, 1976 to 1981.